

ŠKODA

Workshop Manual OCTAVIA II 2004 ➤

Automatic 6-speed gearbox 09G

Edition 08.04

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List of Workshop Manual Repair Groups

Repair Group

- 00 - Technical data
- 32 - Torque converter
- 37 - Control, housing
- 38 - Wheels, Control
- 39 - Final drive, differential

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Technical information should always be available to the foremen and mechanics, because their careful and constant adherence to the instructions is essential to ensure vehicle road-worthiness and safety. In addition, the normal basic safety precautions for working on motor vehicles must, as a matter of course, be observed.



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00 – Technical data

1 Technical Data for the Gearbox

1.1 Identification of the gearbox

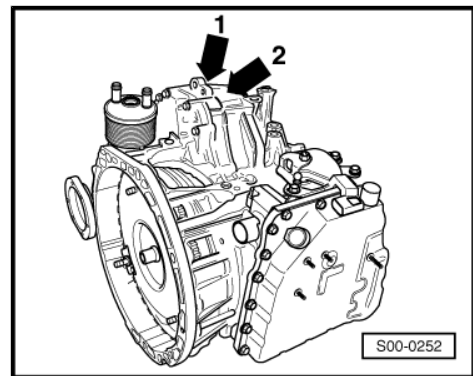
The "Automatic 6-speed gearbox 09G" is installed in combination with 4-cylinder engines. Assignment ➔ [page 1](#) .

Location of identification code letters on the gearbox

Identification characters and manufacturing data of the gearbox -arrow 1- and -arrow 2-.

Example:

FXA	Gearbox identification characters
02H2T0014	Serial number
4	02 : production year 2002 H : production month from A = January to M = December
	2T : identification of the gearbox from the manufacturer 2T = 09G
	00144 : serial number for the production month, this is the 144th gearbox for the month of August
09G 300	Parts No.
035G	
AISIN AW	Manufacturer: AISIN



Note

The gearbox identification characters also appear on the vehicle data stickers.

1.2 Identification characters, aggregate assignment, ratios

Automatic gearbox		6-speed gearbox 09G	
Identification characters		GSY	HFS
Manufactured	from	01.04	08.04
	through	07.04	05.05
Assignment	Engine	1.6 ltr./75 kW	
Torque converter	Identification characters	QJAA	
Ratio	1st gear	4,148	
	2nd gear	2,370	
	3rd gear	1,556	
	4th gear	1,155	
	5th gear	0,859	
	6th gear	0,686	
	Reverse gear	3,394	
Intermediate gear	Input gear	49	
	Output gear	52	
	Ratio	1,061	
Final drive	Drive pinion	15	



Automatic gearbox	6-speed gearbox 09G
Crown wheel	61
Ratio	4,067

Automatic gearbox		6-speed gearbox 09G	
Identification characters		HFR	HFT
Manufactured	from through	08.04 05.05	08.04 05.05
Assignment	Engine	1.6 ltr./85 kW FSI	2.0 ltr./110 kW FSI
Torque converter	Identification characters	QAAA	QHAA
Ratio	1st gear	4,148	
	2nd gear	2,370	
	3rd gear	1,556	
	4th gear	1,155	
	5th gear	0,859	
	6th gear	0,686	
	Reverse gear	3,394	
Intermediate gear	Input gear	49	
	Output gear	52	
	Ratio	1,061	
Final drive	Drive pinion	15	15
	Crown wheel	61	58
	Ratio	4,067	3,867

Automatic gearbox		6-speed gearbox 09G	
Identification characters		HTN	HTM
Manufac- tured	from through	06.05 10.06	06.05 10.06
Assignment	Engine	1.6 ltr./75 kW	1.6 ltr./85 kW FSI
Torque con- verter	Identification characters	QJAA	QAAA
Ratio	1st gear	4,148	
	2nd gear	2,370	
	3rd gear	1,556	
	4th gear	1,155	
	5th gear	0,859	
	6th gear	0,686	
	Reverse gear	3,394	
Intermediate gear	Input gear	49	
	Output gear	52	
	Ratio	1,061	
Final drive	Drive pinion	15	
	Crown wheel	61	
	Ratio	4.067	

Automatic gearbox		6-speed gearbox 09G	
Identification characters		HTP	JUH
Manufactured	from	06.05	11.06
	through	10.06	05.08
Assignment	Engine	2.0 ltr./110 kW FSI	2.0 ltr./110 kW FSI
Torque converter	Identification characters	QHAA	QHAA
Ratio	1st gear	4,148	
	2nd gear	2,370	
	3rd gear	1,556	
	4th gear	1,155	
	5th gear	0,859	
	6th gear	0,686	
	Reverse gear	3,394	
Intermediate gear	Input gear	49	
	Output gear	52	
	Ratio	1,061	
Final drive	Drive pinion	15	
	Crown wheel	58	
	Ratio	3,867	

Automatic gearbox		6-speed gearbox 09G	
Identification characters		JTY	JUG
Manufactured	from	11.06	11.06
	through	05.08	05.08
Assignment	Engine	1.6 ltr./75 kW	1.6 ltr./85 kW FSI
Torque converter	Identification characters	QJAA	QAAA
Ratio	1st gear	4,148	
	2nd gear	2,370	
	3rd gear	1,556	
	4th gear	1,155	
	5th gear	0,859	
	6th gear	0,686	
	Reverse gear	3,394	
Intermediate gear	Input gear	49	
	Output gear	52	
	Ratio	1,061	
Final drive	Drive pinion	15	
	Crown wheel	61	
	Ratio	4,067	

Automatic gearbox		6-speed gearbox 09G		
Identification characters		KGK	KGH	KGJ
Manufactured	from	06.08	06.08	06.08
	through	11.08	11.08	



Automatic gearbox		6-speed gearbox 09G		
Assignment	Engine	2.0 ltr./110 kW FSI	1.6 ltr./85 kW FSI	1.6 ltr./75 kW
Torque converter	Identification characters	QHAA	QAAA	QJAA
Ratio	1st gear	4,148		
	2nd gear	2,370		
	3rd gear	1,556		
	4th gear	1,155		
	5th gear	0,859		
	6th gear	0,686		
	Reverse gear	3,394		
Inter-mediate gear	Input gear	49		
	Output gear	52		
	Ratio	1,061		
Final drive	Drive pinion	15	15	15
	Crown wheel	58	61	61
	Ratio	3,867	4,067	4,067

1.3 Contents

Planetary gear

Contents	Automatic gearbox 09G
New filling	6,0 - 6,1l
Top-up	approx. 4.0 - 4.5 ltr. ¹⁾
Lubricant	⇒ Electronic Catalogue of Original Parts

¹⁾ Filled for life: change the oil following repairs only.

Only spare part ATF should be used for the automatic gearbox 09G.

Checking ATF level, change ATF if necessary ⇒ [page 52](#) .



2 Information and repair instructions for the Automatic Gearbox 09G

2.1 Information on Automatic Gearbox 09G

Gearbox

The automatic 6 speed gearbox 09G is equipped with 6 hydraulically controlled forward gears. When the lockup clutch is closed, these forward gears become mechanically driven gears by bypassing the converter slip.

Torque converter

The torque converter is equipped with a torque converter lockup clutch. The closing of the lockup clutch is load and speed sensitive, and particularly low in vibrations, and without the converter slip the lockup clutch drives all forward gears mechanically.

ATF

The ATF is filled for life. The ATF need not be changed within the scope of servicing.

The ATF oil filling is for the planetary gear and final drive together. Check and top up ➔ [page 52](#).

- ◆ Only spare part ATF should be used for the automatic gearbox 09G. Other oils can lead to functional problems or to failure of the gearbox, spare part number ➔ Electronic catalogue of original parts.

Gear-change points change on upward and downward gradients

On upward or downward gradients, gear-changes are selected automatically by additional gear-change mapping, according to accelerator position and driving speed.

- ◆ On steep gradients, gear-change mapping is adapted to engine power output
- ◆ On steep gradients, gear-change mapping is adapted to the braking effect of the engine
- ◆ By directly selecting a gear via the Tiptronic, e.g. for a slope during trailer operation, the motor braking effect is also fully used.

2.2 Repair instructions

Scrupulous care and cleanliness as well as the proper tools are essential requirements for carrying out proper and successful gearbox repairs. Obviously, the generally valid basic safety rules apply to repair work.

A number of generally valid notes for individual repair operations - which are otherwise listed several times at numerous points in the workshop manual - are summarized here. They apply to this workshop manual.

Special tools

List of the special tools used in the workshop manual ➔ Workshop Equipment Electronic Catalogue.

Gearbox

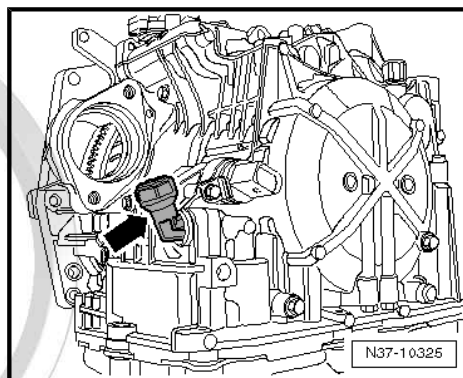
- ◆ Each time a gearbox is installed, basic settings are required.
- ◆ Do not run the engine or tow the vehicle when the oil pan of the gearbox has been removed or without ATF filling.



- ◆ If the automatic gearbox is replaced, check ATF level if necessary top up with ATF ⇒ [page 52](#) . Capacity and specification ⇒ [page 4](#) .
- ◆ Secure the torque converter against dropping out when the gearbox is removed.
- ◆ Thoroughly clean the connection points and their surroundings before releasing.
- ◆ Before installing the gearbox check the fitting position of the torque converter ⇒ [page 11](#) .
- ◆ When installing, take care with the correct positions of dowel sleeves in the engine.
- ◆ Place removed parts on a clean surface and cover. Use foil and paper. Do not use fuzzy cloths!
- ◆ Carefully cover or close opened components if the repair is not completed immediately.
- ◆ Only install clean parts. Remove spare parts from their wrapping immediately before fitting.

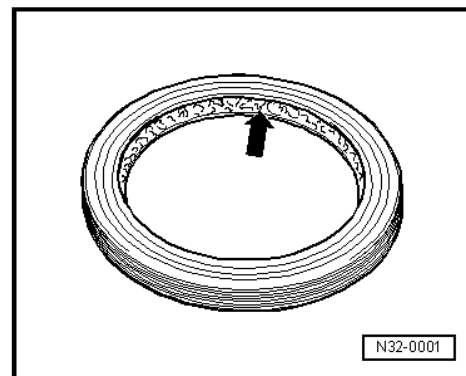
The ATF filler tube is no longer available on gearboxes as of manufacturing date 06.06 -arrow-.

O-rings, gasket rings, gaskets



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- ◆ Always replace O-rings, gaskets and gasket rings.
- ◆ After removing gaskets, examine the contact surface in the housing or on shafts for burrs or damage, and correct if necessary.
- ◆ Depending on location, before fitting a gasket ring, smear the outer surface and sealing lip thinly with ATF or axle oil.
- ◆ Before inserting the O-rings coat with ATF to prevent the rings being squashed during installation.
- ◆ The open side of the sealing rings is turned towards the oil.
- ◆ Never use other lubricants in the ATF area.
- ◆ Radial shaft seals - before mounting lightly oil at outside diameter and fill half the space between the sealing lips -arrow- with with sealing grease - G 052 128 A1- .
- ◆ After installation, inspect ATF level and if necessary top up
⇒ [page 52](#) .



Locking elements

- ◆ Do not over-extend the circlips, if necessary replace.
- ◆ Circlips must be positioned in the base of the groove.

Screws, nuts

- ◆ Slacken and tighten nuts and bolts for attaching covers and housings diagonally across.
- ◆ Do not twist particularly sensitive parts - e.g. the slide valve body - and slacken and tighten diagonally across in stages.
- ◆ Tightening torques apply for non-oiled nuts and bolts.
- ◆ Clean the thread of the screws that are inserted with a locking agent with a wire brush. Insert bolts with locking agent -AMV 185 101 A1- .
- ◆ Clean all threaded holes into which self-locking bolts are inserted, using a thread tap to remove locking agent residues. Otherwise there is a risk that the bolts will shear at the next disassembling.
- ◆ Replace the self-locking screws and nuts.
- ◆ Bolts that need to be turned at a certain angle after tightening must always be replaced.

Targeted fault-finding

Before repairing automatic gearbox 09G, try to determine the origin of the damage as accurately as possible using the ⇒ Vehicle diagnosis, testing and information system VAS 5051 in "Targeted fault-finding" mode.

2.3 Explanation of the terms used in this workshop manual

The following explanations are only related to this assembly: Automatic gearbox 09G. They do not claim to be valid in all cases.

ATF (Automatic Transmission Fluid)

Gear oil for automatic gearbox.

ATF level

ATF level in the gearbox. To measure the ATF level, see the instructions in the Workshop Repairs Manual.



Brakes

They hold together the rotating components in the gearbox. As opposed to the clutches the brakes are supported on the gearbox housing.

Torque converter

Transfers the engine torque to the automatic gearbox and serves as an hydraulic starting clutch. The torque converter also includes the torque converter lockup clutch.

Self-diagnosis

The capability of the control unit for the automatic gearbox -J217-:

- ◆ recognize faults,
- ◆ react to faults,
- ◆ store faults,
- ◆ Determine measured values and to display them in the measured value block.

Perform self-diagnosis

- Connect ⇒ Vehicle diagnosis, testing and information system VAS 5051 and perform “Targeted Fault Finding” or “Vehicle self-diagnosis”.

Clutches

In combination with the brakes, the clutches switch between the various forward and reverse gears of the planetary gears, thus providing different forward gear ratios.

Wiring

Fitting locations of electrical cables and components in the gearbox.

Selector lever lock solenoid -N110-

Located in the gearshift mechanism close to the selector lever. Prevents the (unintentional) shifting of the selector lever from positions “P” and “N”, as long as the brake pedal is not pressed.

Solenoid valves

Open and shut the oil galleries to the clutches and brakes.

Multi-function switch -F125-

The multi-function switch -F125- is screwed onto the top of the gearbox housing to the gearshift shaft. It is an electrical switch, which transfers the individual gears selected with the selector lever to the gearbox control unit. It must be correctly set
⇒ [page 86](#).

Parking position

When the vehicle is parked, the selector lever mechanically locks the parking gear in position “P” thereby preventing the vehicle from moving off unintentionally.

Planetary gear

The mechanical part of the automatic gearbox that is switched via clutches and brakes without power flow interruption.

Slide valve body

Located below the gearbox and is surrounded by the oil pan of the gearbox. Its valves regulate the hydraulic pressure and dis-



tribute it via the oil galleries to the gearshift elements (clutches and brakes).

Automatic Gearbox Control Unit -J217-

Control unit -J217- determines the shifting points. The function of the gearbox is monitored via self-diagnosis. If components or sensors fail, an emergency running programme is activated to continuity of vehicle operation.

LC (torque converter lockup clutch)

Mechanically transmits the engine torque to the gearbox.

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32 – Torque converter

1 Torque converter



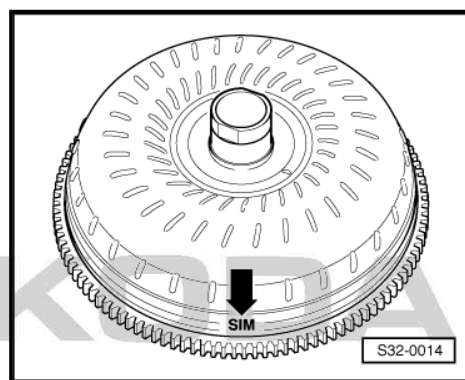
Note

- ♦ *Repair instructions ⇒ [page 5](#).*
- ♦ *Coat gasket rings with ATF. Other types of lubricant will cause the gearbox hydraulic control system to malfunction.*

1.1 Torque converter identification

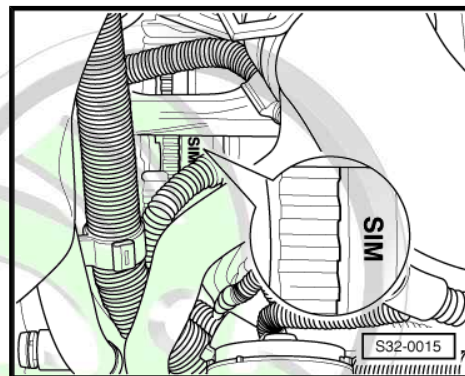
There are different torque converters. Identification occurs with identification characters -arrow-.

Assign the torque converter ⇒ [page 1](#).



Torque converter identification

(Gearbox installed)



1.2 Draining the torque converter

Special tools and workshop equipment required

- ♦ Oil aspirator unit -(z. B. V.A.G 1782)-

If the ATF has been contaminated or if the gearbox has had a major repair, the torque converter should be drained as follows:

- Drain off the ATF from the torque converter using an oil aspiration unit -V.A.G 1782-.

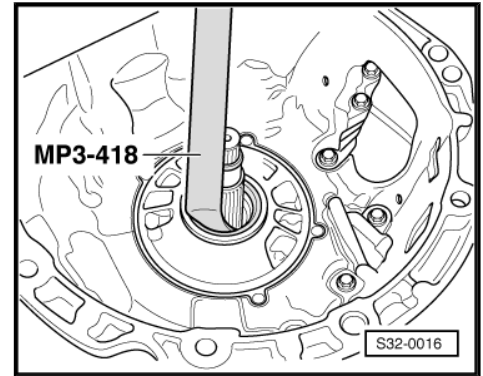
1.3 Removing and installing gasket ring for torque converter

Special tools and workshop equipment required

- ♦ Ejection lever -MP3-418 (VW 681)-
- ♦ Pressure plate -T10175-

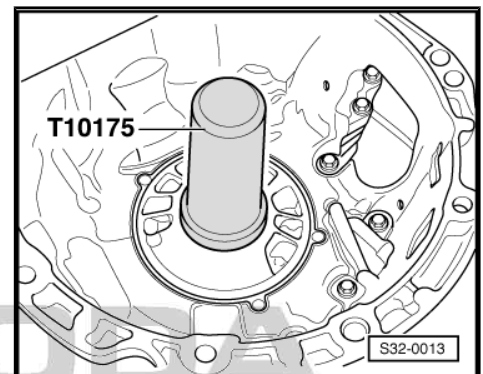
Removing gasket ring for torque converter

- Lever out gasket ring with ejection lever -MP3-418 (VW 681)- .



Install gasket ring for torque converter

- Insert the gasket ring for the torque converter using a pressure plate - T10175- .



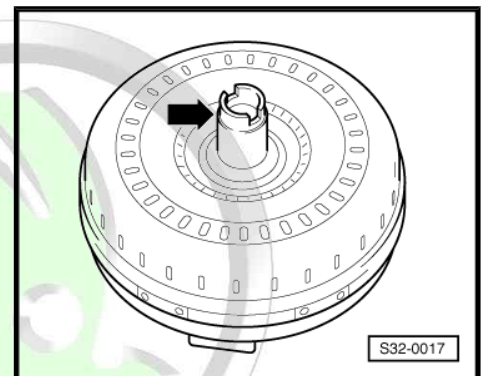
1.4 Checking the torque converter

- Check hub -arrow- of torque converter for traces of wear.



Note

The torque converter is welded and must be replaced completely if damaged or faults.



1.5 Installing the torque converter

Special tools and workshop equipment required

- ◆ Depth gauge

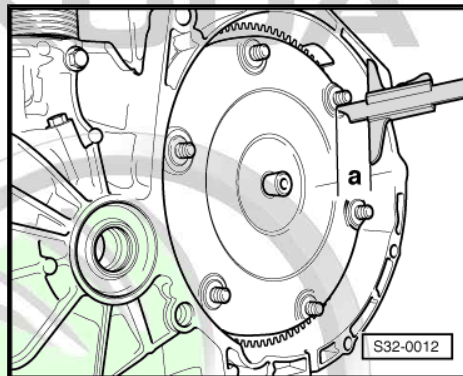
Procedure

- Push the torque converter hub through the gasket ring up to the first stop on the gearbox shaft.
- Press the torque converter by hand into the converter bell cover until the torque converter hub catches in the recesses of the inner gear of the ATF pump. The torque converter must be felt to slide in.

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- Measure the dimension -a- between the screw-on flange of the gearbox housing and the contact surface of the threaded bores of the torque converter using a depth gauge.
- The converter is correctly installed if the dimension -a- is at least 19.5 mm.
- Absolutely ensure that the dimension -a- is maintained during further assembly. The torque converter must not slide to the front.

**WARNING**

If the converter is installed wrongly the driver of the torque converter or the ATF pump will be destroyed when the gearbox on the engine is connected at its flange.

When subsequently installing the gearbox, the following point must be observed.

**WARNING**

Always check before and after tightening up the screws on the flange of the engine/gearbox whether the torque converter behind the driver plate can be turned. In cases where the torque converter cannot be turned one must assume that it is not properly installed and that either the driver plate of the torque converter or the ATF pump will be destroyed during final tightening of the bolted connections.

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37 – Control, housing

1 Electric/Electronic Components and Fitting Locations

1.1 Electric/Electronic Components and Fitting Locations

1 - Automatic Gearbox Control Unit -J217-

- ☐ Fitting location and removing and installing ➔ [page 18](#)
- ☐ Control unit is checked by self-diagnosis

2 - Diagnostic connection

- ☐ Fitting location: Cover in driver footwell ➔ [page 14](#)

3 - Selector lever lock solenoid -N110-

- ☐ Fitting location ➔ [page 15](#)
- ☐ is checked by self-diagnosis

4 - Slide valve body

- ☐ Fitting location ➔ [page 15](#)
- ☐ removing and installing ➔ [page 67](#)
- ☐ Marking of solenoid valves ➔ [page 64](#)

5 - Wiring loom with 8-pin plug and integrated gearbox oil temperature sender -G93-

- ☐ Fitting location: Wiring loom is fixed to the slide valve body ➔ [page 15](#)
- ☐ Gearbox oil temperature sender -G93- is checked by self-diagnosis

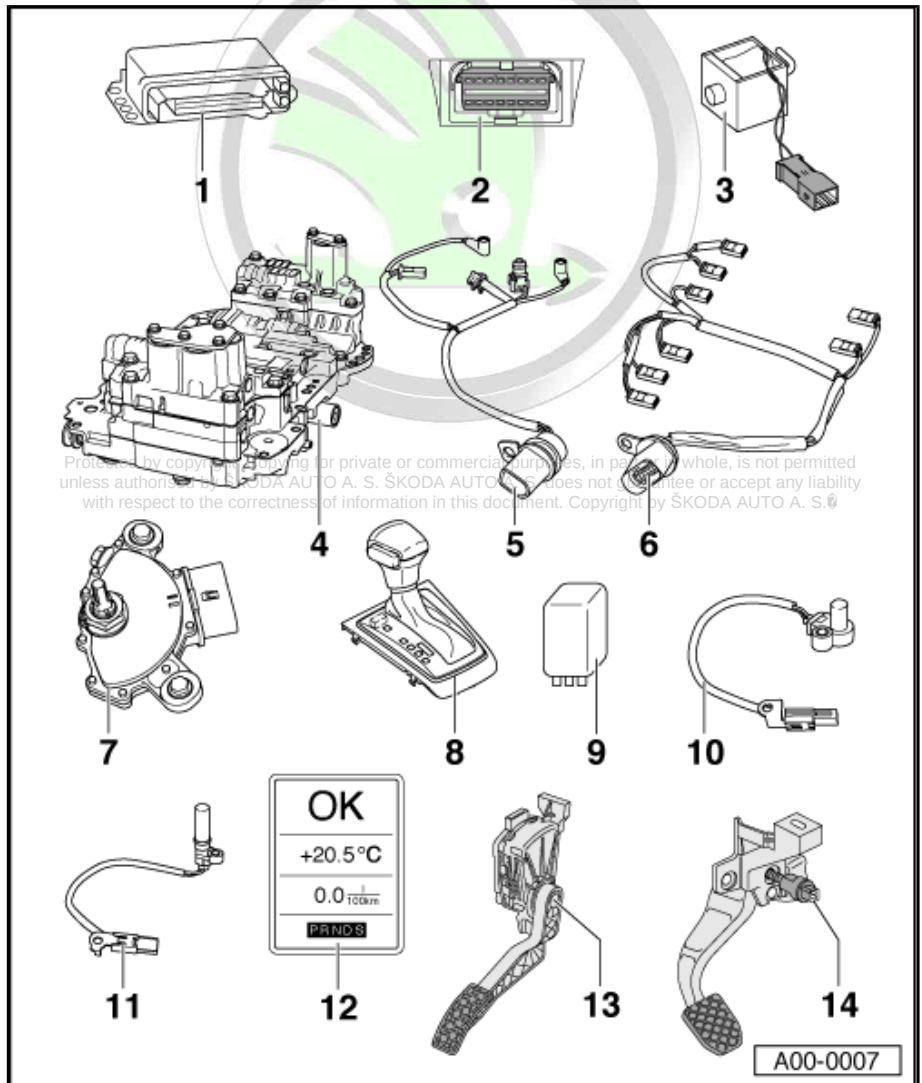
- ☐ removing and installing ➔ [page 79](#)

6 - Wiring loom with 14-pin plug

- ☐ for solenoid valves and gearbox sensors
- ☐ Fitting location: Wiring loom is fixed to the slide valve body ➔ [page 15](#)
- ☐ Designation of solenoid valves and wiring loom routing ➔ [page 64](#)
- ☐ removing and installing ➔ [page 77](#)

7 - Multi-function switch -F125-

- ☐ Fitting location ➔ [page 16](#)
- ☐ is checked by self-diagnosis
- ☐ removing and installing ➔ [page 84](#)



8 - Cover of the shift mechanism

- ☐ removing and installing ⇒ [page 27](#)
- ☐ the Tiptronic switch -F189- is integrated in the shift mechanism; Fitting location ⇒ [page 16](#)

9 - Terminal 50, voltage supply relay -J682-

- ☐ up to 05.05 fitting location : E-box in the engine compartment ⇒ Current flow diagrams and Fitting locations
- ☐ as of 06.05 fitting location: additional relay holder under the dash panel ⇒ Current flow diagrams and Fitting locations

10 - Gearbox input r.p.m. sender -G182-

- ☐ Fitting location ⇒ [page 17](#)
- ☐ is checked by self-diagnosis
- ☐ removing and installing ⇒ [page 81](#)

11 - Gearbox output r.p.m. sender -G195-

- ☐ measures the gearbox output speed
- ☐ Fitting location ⇒ [page 17](#)
- ☐ is checked by self-diagnosis
- ☐ removing and installing ⇒ [page 82](#)

12 - Selector lever position indicator -Y6 -

- ☐ Fitting location ⇒ [page 17](#)
- ☐ a switched off gear display points to an emergency operation with deactivated gearbox control unit
- ☐ a fully lit gear display points to an emergency operation with activated gearbox control unit
- ☐ removing and installing ⇒ Electrical System ⇒ Rep. Gr. 90

13 - Kickdown switch -F8-

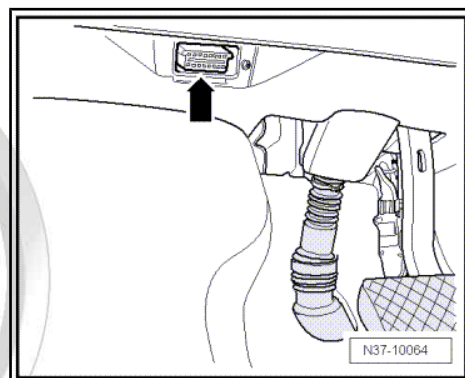
- ☐ Fitting location ⇒ [page 18](#)
- ☐ is checked by self-diagnosis
- ☐ Signal transfer from engine to gearbox control unit via CAN databus
- ☐ removing and installing accelerator pedal module ⇒ Engine ⇒ Rep. Gr. 20

14 - Brake light switch -F-

- ☐ Fitting location ⇒ [page 18](#)
- ☐ Signal transfer from engine to gearbox control unit via CAN databus
- ☐ is checked by self-diagnosis
- ☐ removing and installing ⇒ Chassis ⇒ Rep. Gr. 46

Diagnostic connection

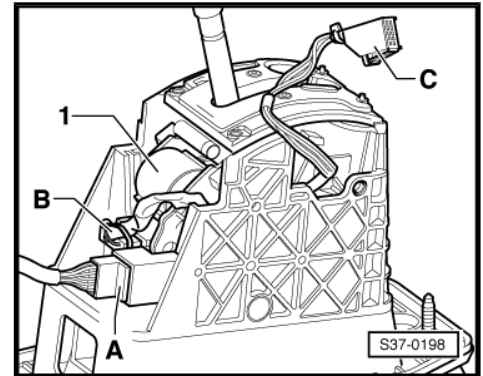
Fitting location: Cover in driver footwell



Selector lever lock solenoid -N110-

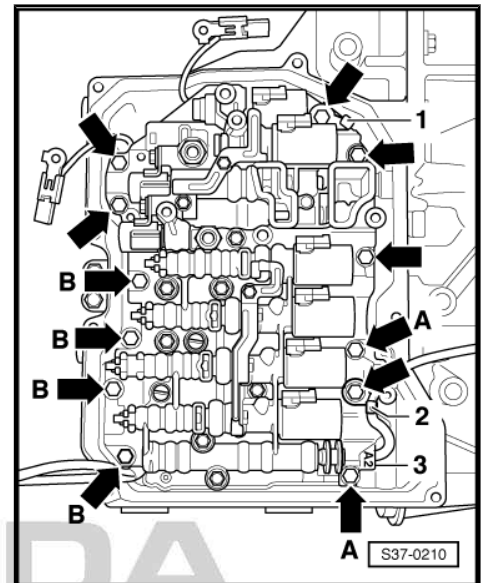
Fitting location: Selector lever lock solenoid -N110- -1- is located in the gearshift mechanism

The solenoid is installed firmly in the gearshift mechanism and cannot be replaced individually. The removal and installation procedure is only possible together with the gearshift mechanism
⇒ [page 29](#) .



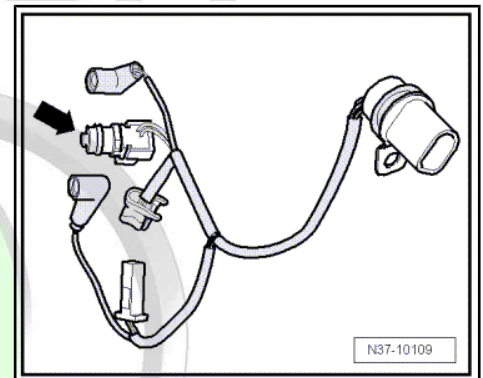
Slide valve body

Fitting location: The slide valve body is bolted to the bottom of the gearbox housing and covered with the gearbox oil pan.



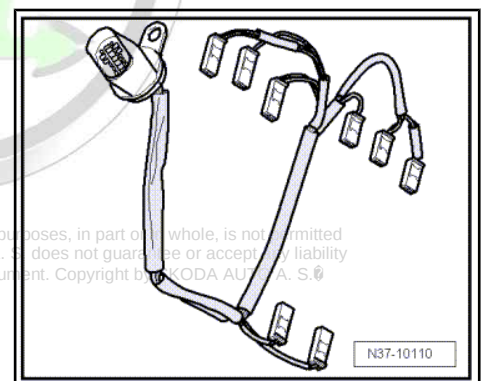
Wiring loom with 8-pin plug and integrated gearbox oil temperature sender -G93- -arrow-

Fitting location: Wiring loom is fixed to the slide valve body



Wiring loom with 14-pin plug

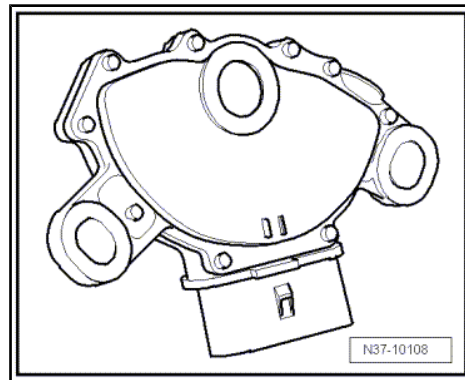
Fitting location: Wiring loom is fixed to the slide valve body



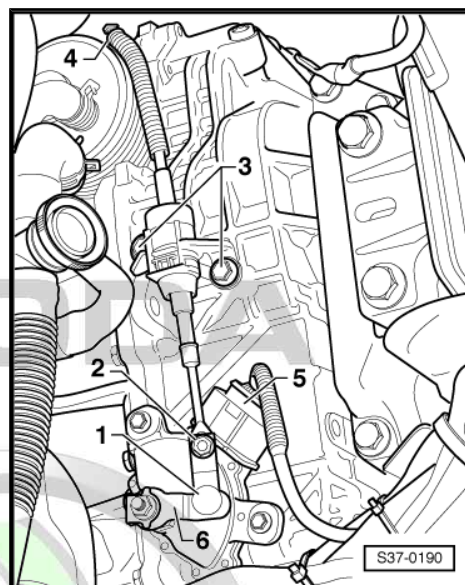
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Multi-function switch -F125-



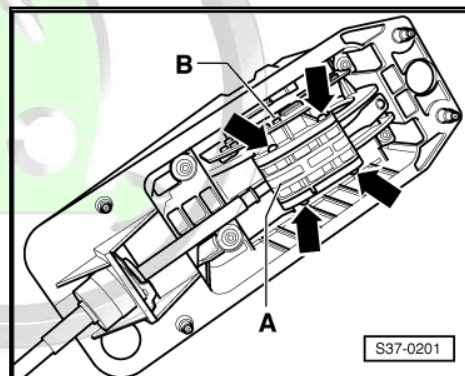
Fitting location: The multi-function switch is located at the top of the gearbox. The plug connection -5- is directly placed onto the multi-function switch.



Tiptronic switch -F189-

Fitting location: The Tiptronic switch -F189- is integrated in the printed circuit board -B- of the gearshift mechanism.

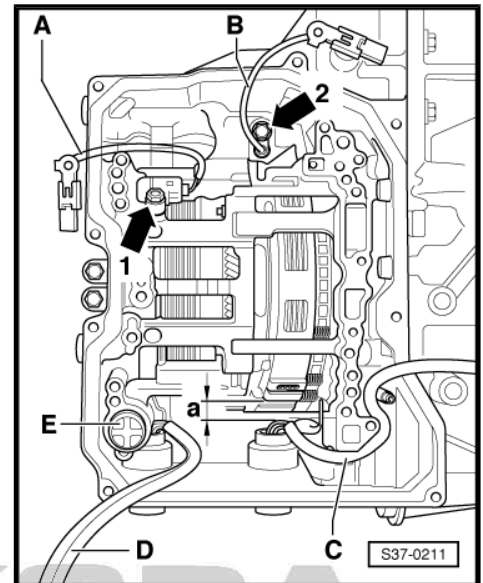
The Tiptronic switch -F189- is installed firmly in the gearshift mechanism and cannot be replaced individually. The removal and installation procedure is only possible together with the gearshift mechanism ⇒ [page 29](#) .



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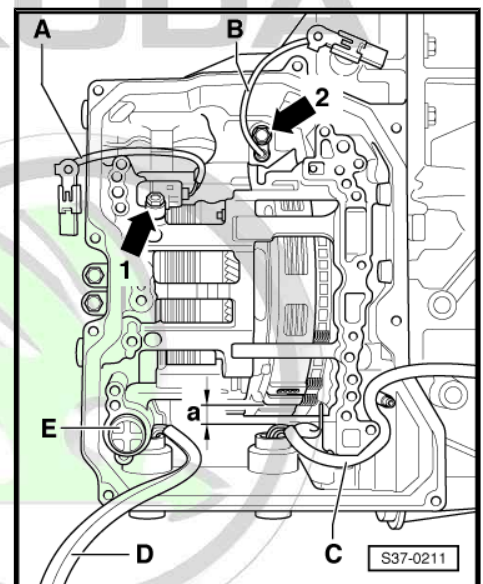
Gearbox output r.p.m. sender -G195-

Fitting location: The gearbox output r.p.m sender - G195-
-arrow 2- is fixed to the gearbox housing behind the slide valve
body.



Gearbox input r.p.m. sender -G182-

Fitting location: The gearbox input r.p.m sender -G182-
-arrow 1- is fixed to the gearbox housing behind the slide valve
body.



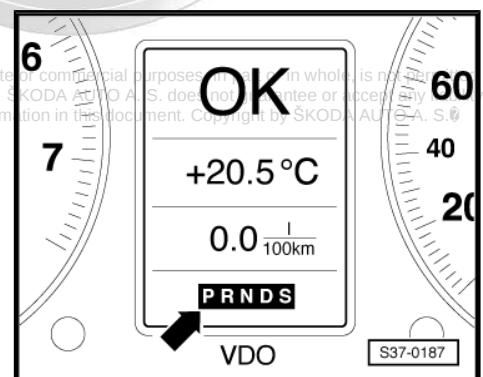
Selector lever position indicator -Y6-

Fitting location: integrated in the dash panel insert.



Note

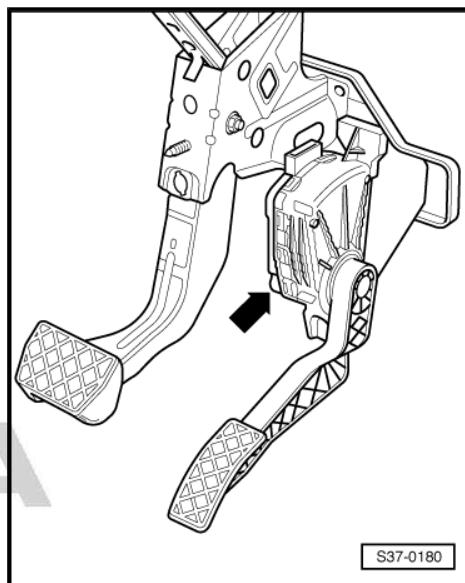
*The selector lever position indicator -Y6- can only be replaced
together with the dash panel insert.*





Kickdown switch -F8-

This switch is not available for vehicles with petrol engine. Instead a certain value from the accelerator pedal position sender -G79- / accelerator pedal position sender 2 -G185- is stored in the engine control unit.



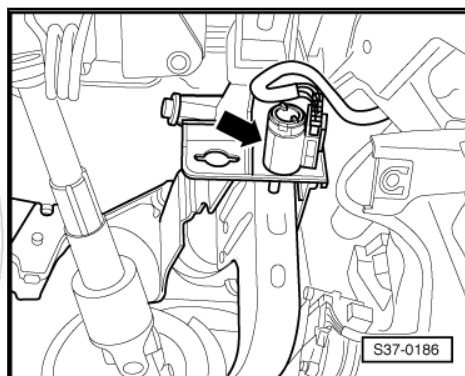
Brake light switch -F-

Fitting location: The brake light switch -F- -arrow- is located in the foot controls.



Note

The switch may only be installed once to ensure that it has an adequately tight fit.



1.2 Removing and installing automatic gear-box control unit -J217-

Fitting location: The control unit is located in the front left wheel-house.

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Removing the control unit

- Remove front wheel on the left.
- Remove the left wheelhouse liner ⇒ Body Work ⇒ Rep. Gr. 66 .

- Unlock the plug connection from the gearbox control unit.
- Screw out the screws.
- Take out control unit.

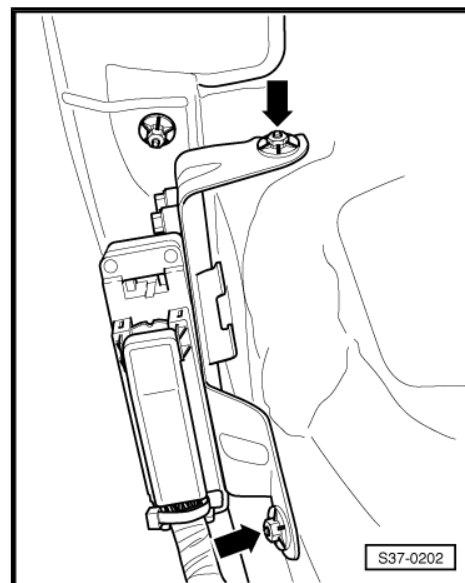


Note

The adaptation values in the gearbox control unit are reset when the plug connection of the gearbox control unit is separated. The control unit must re-initialise these values after re-start. During this "initialisation" the gearshift quality can be worse than usual.

Install

- Installation is carried out in the reverse order.



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2 Repairing the gearshift mechanism

2.1 Inspecting the gearshift mechanism



WARNING

Before working on the engine when the engine is running, insert the selector lever in position "P" and apply handbrake.

- ◆ In selector lever positions "S", "D", "R" and Tiptronic position it must not be possible to activate the starter.
- ◆ At speeds above 5 km/h and shifting in selector lever position "N" the selector lever lock solenoid must not engage and block the selector lever. Selector lever can be shifted in a driving position.
- ◆ At speeds below 5 km/h (virtual standstill) and shifting in selector lever position "N" the selector lever lock solenoid must only engage after approx. 1 s. The selector lever can only be moved from position "N" by activating the brake pedal.

Selector lever in position "P" and ignition switched on:

- Brake pedal is not operated:

The selector lever is locked and cannot be moved out of position "P". The selector lever lock solenoid blocks the selector lever.

- Brake pedal is operated:

The selector lever lock solenoid releases the selector lever. It is possible to engage a driving gear position. Slowly shift selector lever from "P" through "R, N, D, S"; while doing so check whether the selector lever position in the dash panel insert corresponds with the actual selector lever position.

Selector lever in position "N" and ignition switched on:

- Brake pedal is not operated:

The selector lever is locked and cannot be moved out of position "N". The selector lever lock solenoid blocks the selector lever.

- Brake pedal is operated:

The selector lever lock solenoid releases the selector lever. It is possible to engage a driving gear position.

Selector lever in position "D" ignition and light switched on:

- Selector lever in Tiptronic gear leads to:

The "D" symbol on the selector lever display should go out and the "+" and "-" symbols should light up.

When the gear selector lever is put into the Tiptronic gear, the selector lever position display in the dash panel insert should change from "PRNDS" to "654321".

- Move selector lever in the Tiptronic gear to "+" and "-".

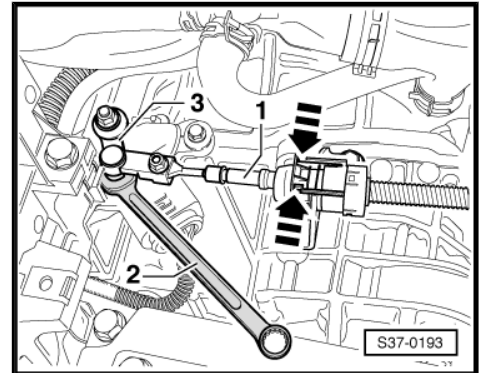
When the gear selector lever is put into a higher or a lower driving position, the selector lever position display in the dash panel insert should change.

- Inspecting and adjusting the selector lever control cable
⇒ [page 21](#).
- Checking the ignition key lock ⇒ [page 22](#).

2.2 Inspecting and adjusting the selector lever control cable

Inspection

- Shift selector lever into position “P”.
- Remove engine cover.
- Remove air guide hose.
- Remove air filter ⇒ Engine ⇒ Rep. Gr. 24 .
- Lever off the selector lever control cable -1- from gearshift shaft lever -3- e.g using an open-end wrench -2-.
- Compress catches at support of selector lever cable -arrows- and pull out the selector lever control cable from the support/gearbox.
- Lever off selector lever control cable in such a way that the extremity can move freely.
- ◆ Do not bend or buckle selector lever control cable.
- Shift selector lever from “P” to “S”.
- Check front boot on the selector lever cable control for damage, if necessary replace control cable.
- Shift selector lever into position “P”.
- Gearshift mechanism and selector lever control cable must move smoothly when shifting gears, if necessary replace selector lever control cable ⇒ [page 33](#) or repair gearshift mechanism.
- Carefully push selector lever control cable onto the gearshift lever and insert in the support/gearbox.



Setting

The selector lever control cable must be set, if:

- ◆ the selector lever control cable was removed from the gearbox
- ◆ the engine was removed and installed or the gearbox was removed and installed
- ◆ the selector lever control cable or the shift mechanism was removed and installed
- ◆ the position of the engine/gearbox was changed, e.g. during a stress-free assembly
- Shift selector lever into position “P”.

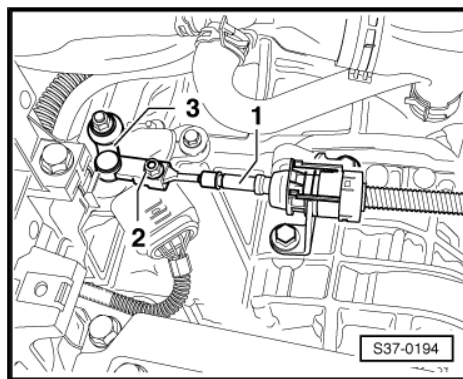
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- Release screw -2- at the front ball socket of the selector lever control cable -1-.
- Tip selector lever in position “P” slightly to the front and to the rear, however under no circumstances move out of “P”.
- Position gearshift shaft lever -3- at gearbox in “P”, i.e. press gearshift shaft lever in the direction of travel.



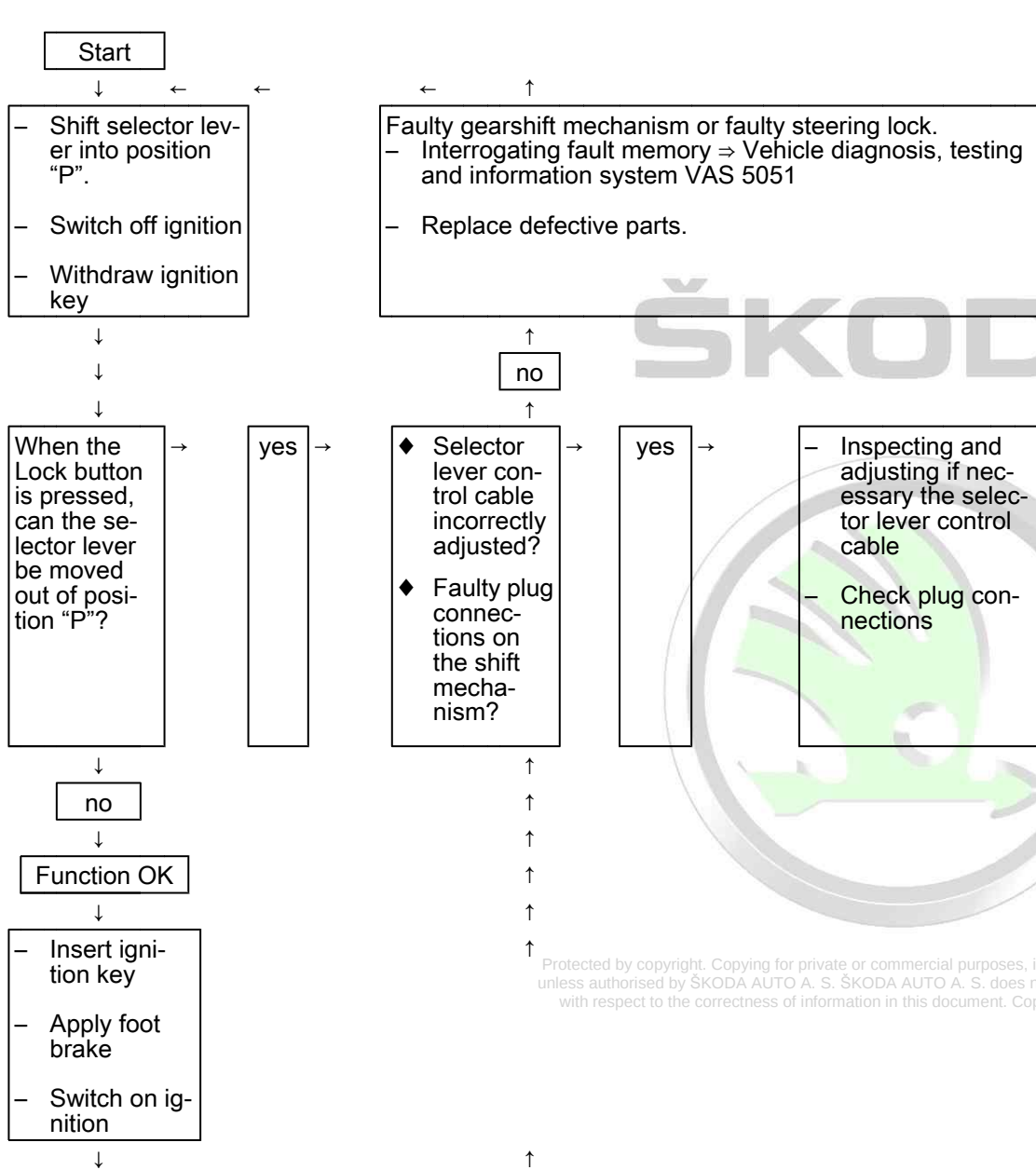
Note

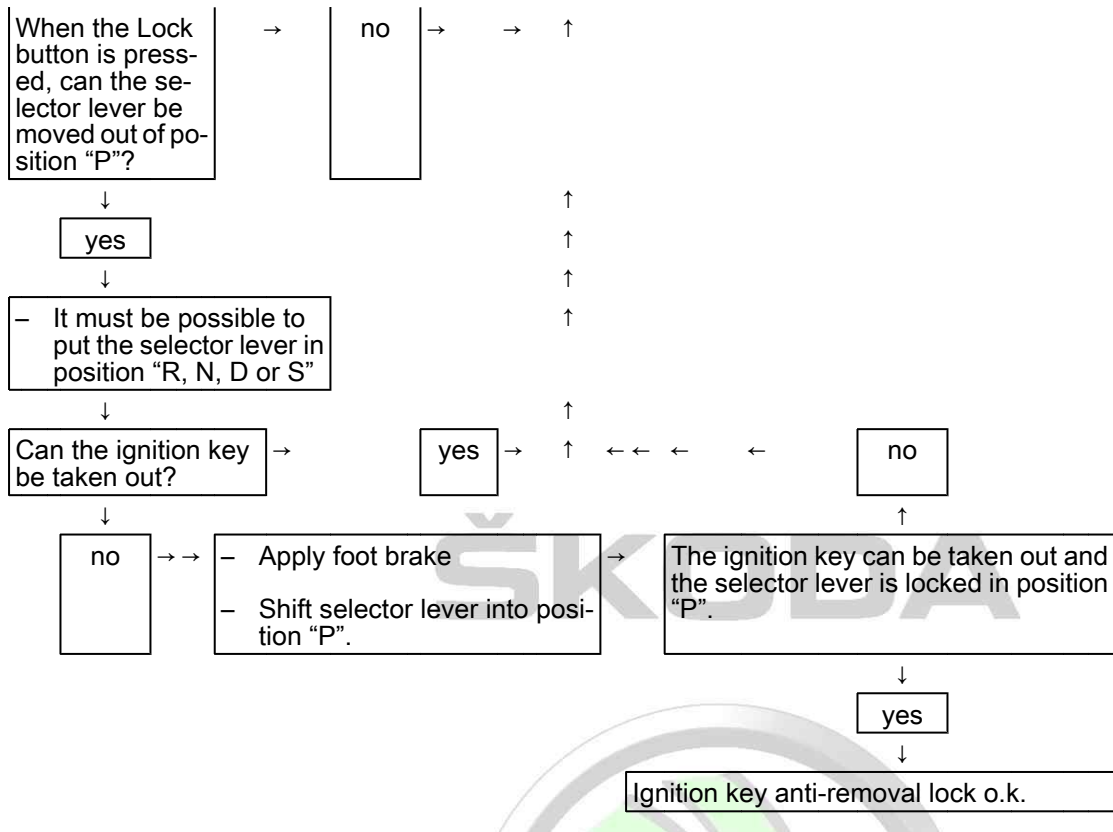
Locking lever must engage in parking gear, both front wheels are blocked (cannot be simultaneously turned in one direction).



- Tighten screw -2- (13 Nm).
- Inspect gearshift mechanism ➔ [page 20](#).

2.3 Check operation of the ignition key anti-removal lock





2.4 Summary of components - Shift mechanism up to 10.09 ("old shifting")



Note

Grease bearing and friction surfaces with grease -G 000 450 02-.

There is no mechanical ignition key anti-removal lock, but an electrical anti-removal lock.

- ◆ Check operation of the ignition key anti-removal lock
⇒ [page 22](#)

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1 - Cover of the shift mechanism

- ☐ removing and installing
⇒ [page 27](#)
- ☐ for the emergency release only the cover needs to be unclipped
⇒ [page 39](#)

2 - Stop buffer for selector lever

- ☐ clipped into the gearshift mechanism

3 - 10 Nm

- ☐ 4 pieces
- ☐ for attaching the gearshift mechanism to body

4 - Gearshift mechanism (bearing pot)

- ☐ removing and installing
⇒ [page 29](#)
- ☐ with firmly integrated circuit board for gearshift mechanism, do not touch
- ☐ with firmly integrated Tiptronic switch -F189- and Selector lever lock solenoid -N110-, these components can be checked in the "Targeted fault finding" ⇒ Vehicle diagnosis, testing and information system VAS 5051
- ☐ replace gearshift mechanism if Tiptronic switch -F189- defective
⇒ [page 29](#)
- ☐ replace gearshift mechanism if selector lever lock solenoid -N110- is defective ⇒ [page 29](#)

5 - Catch spring

6 - 3.5 Nm

7 - Catch plate

8 - 3.5 Nm

- ☐ 4 pieces
- ☐ for attaching the catch plate to the gearshift mechanism

9 - Bearing bolt

- ☐ for selector lever control cable on gearshift mechanism

10 - Lock washer

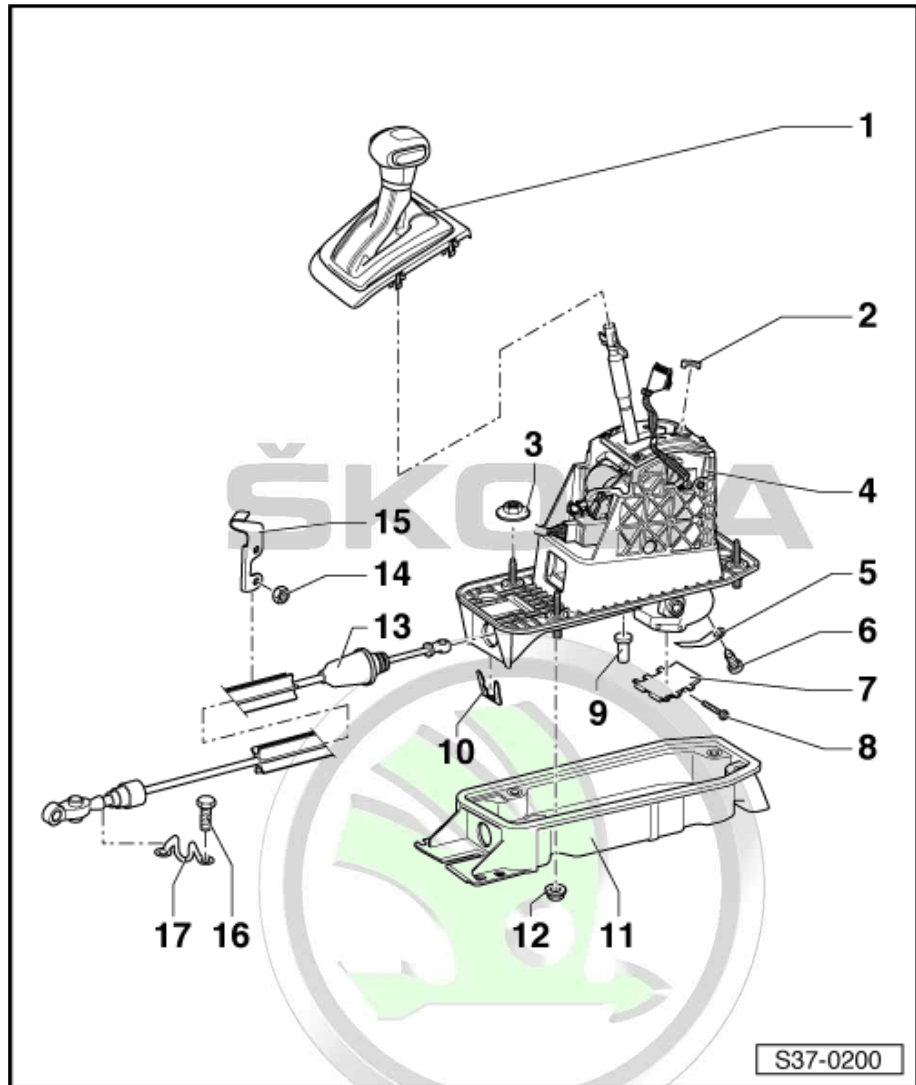
- ☐ for selector lever control cable on bearing pot
- ☐ replace

11 - Cover for gearshift mechanism

- ☐ with affixed gasket

12 - 9 Nm

- ☐ self-locking
- ☐ for attaching the cover to the gearshift mechanism





- ☐ 4 pieces
- ☐ replace ⇒ Electronic Catalogue of Original Parts

13 - Selector lever control cable

- ☐ do not bend or buckle
- ☐ if the boot is damaged the selector lever control cable must be replaced
- ☐ testing and adjusting ⇒ [page 21](#)
- ☐ removing and installing ⇒ [page 33](#)
- ☐ Do not grease drawbar eye and ball socket.

14 - 13 Nm

- ☐ for bracket ⇒ [Item 15 \(page 25\)](#) to gearbox

15 - Support

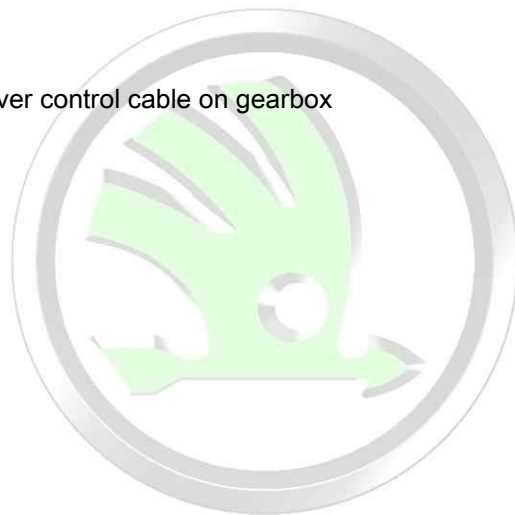
- ☐ for selector lever control cable

16 - 23 Nm

- ☐ for support to gearbox
- ☐ 2 pieces

17 - Support

- ☐ for selector lever control cable on gearbox



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2.5 Summary of components - Shift mechanism as of 11.09 ("new shifting")



Note

The selector lever control cable was replaced as a separate component on vehicles up to manufacturing date 10.09 ("old shifting") ➔ [page 23](#). As of manufacturing date 11.09 ("new shifting") this is no longer possible, the selector lever control cable Pos. 10 must not be removed (separated) from the shift mechanism Pos. 3, it must be replaced together as one component part ➔ *Electronic Catalogue of Original Parts*.

1 - Cover with handle

- ☐ Remove the cover
➔ [page 27](#)
- ☐ for the emergency release only the cover needs to be unclipped
- ☐ the symbol insert and the circuit board with the lamp for selector lever scale illumination - L101- are integrated in the cover

2 - Open worm-type clamp

- ☐ always replace ➔ *Electronic Catalogue of Original Parts*
- ☐ tighten using hose binding claw -V.A.G 1275-

3 - Selector lever and shift mechanism

- ☐ with selector lever lock solenoid - N110-
- ☐ Emergency release
➔ [page 39](#)
- ☐ removing and installing
➔ [page 29](#)
- ☐ after the installation adjust the selector lever control cable ➔ [page 21](#)
- ☐ Remove the shift mechanism from the shift housing ➔ [page 27](#)

4 - Screw

5 - Shift housing with gasket

- ☐ Remove shift housing ➔ [page 27](#)

6 - Nut, 25 Nm

- ☐ 4 pieces

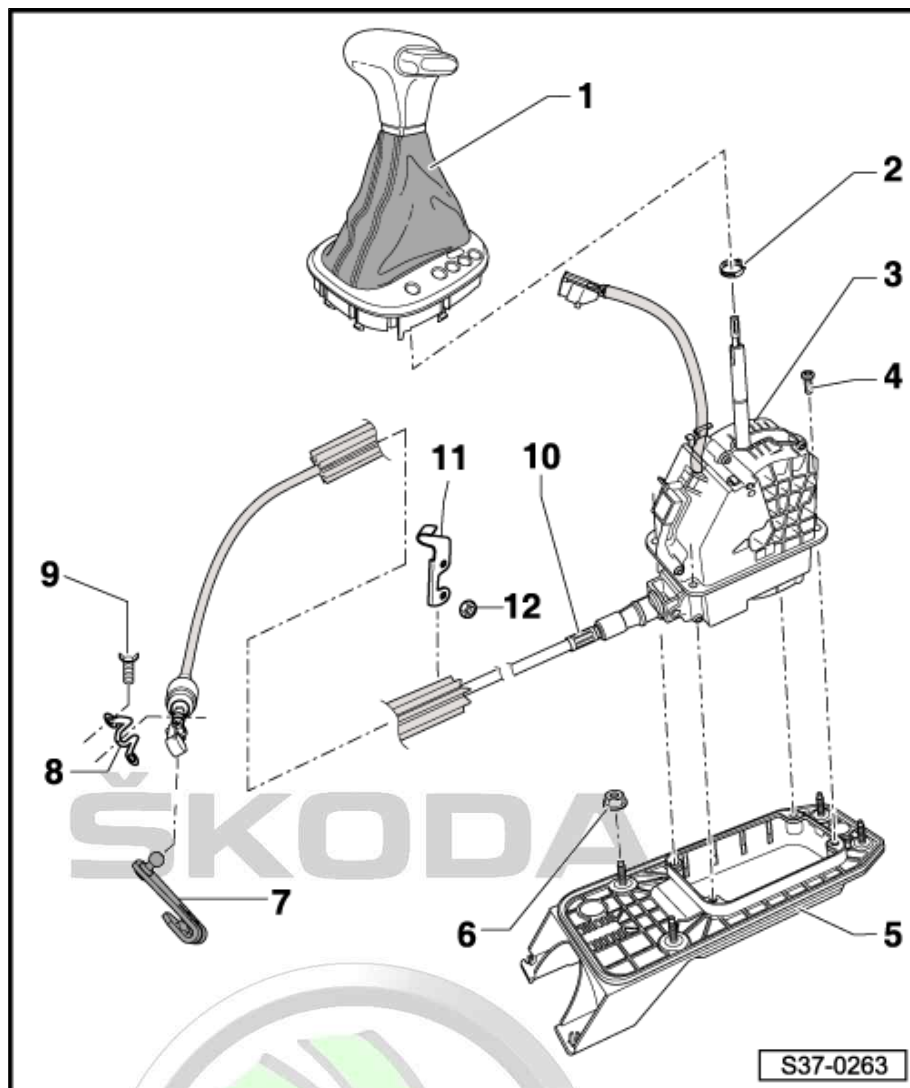
7 - Gearshift shaft lever

8 - Cable support

- ☐ for selector lever control cable

9 - 23 Nm

- ☐ for support to gearbox
- ☐ 2 pieces



10 - Selector lever control cable



Note

The selector lever control cable must not be removed from the shift mechanism Pos. 3, it must be re-placed together as one component part ⇒ Electronic Catalogue of Original Parts .

- ☐ Do not grease selector lever control cable
- ☐ remove from the shift housing and install ⇒ [page 27](#)
- ☐ testing and adjusting ⇒ [page 21](#)

11 - Support

- ☐ for selector lever control cable

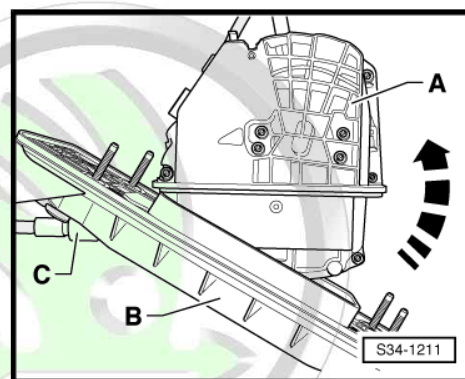
12 - 13 Nm

- ☐ for holder Pos. 11 at gearbox

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Remove the shift mechanism together with the selector lever control cable from the shift housing

Remove the shift mechanism -A- together with the selector lever control cable -C- from the shift housing -B- in -direction of arrow-. To do so, unscrew 4 screws Pos. 4 (fig. S37-0263) from the shift housing ⇒ [page 26](#) .



2.6 Removing and Installing the handle and cover for the shift mechanism

Special tools and workshop equipment required

- ◆ Hose binding claw -V.A.G 1275-
- ◆ Release tool -T30098-

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2.6.1 Removing

- Push selector lever into position “N”.
- Switch off ignition.



Note

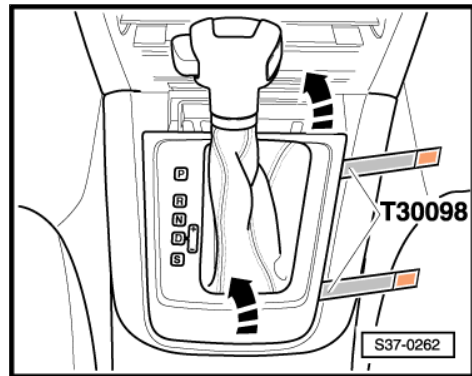
Make sure that the vehicle does not put itself into motion.

- Open ashtray in the centre console.

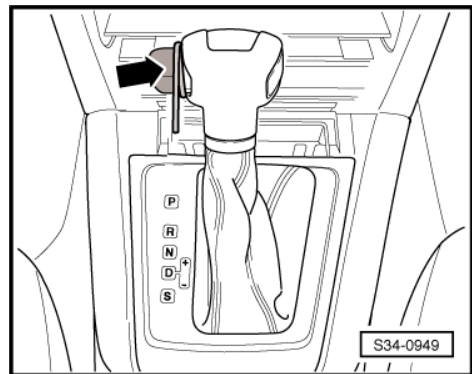


- Release the front right cover -arrow- using the release tool - T30098- . Then release the rear right and centre cover -arrow-.

Carefully slacken the cover.



- Before removing the handle pull out lock button over its pressure point and secure it with a cable strap or a suitable wire. This can prevent that the push-button is inadvertently pressed into the handle.

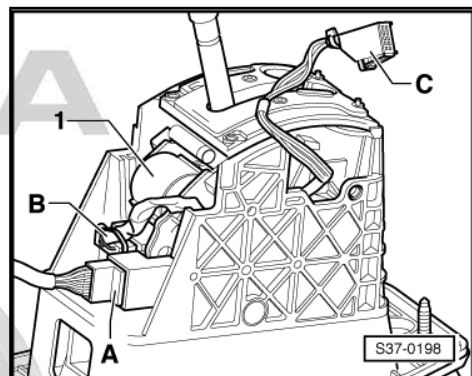


- Release plug connection -C- from the lamp for selector lever scale illumination -L101- and disconnect.

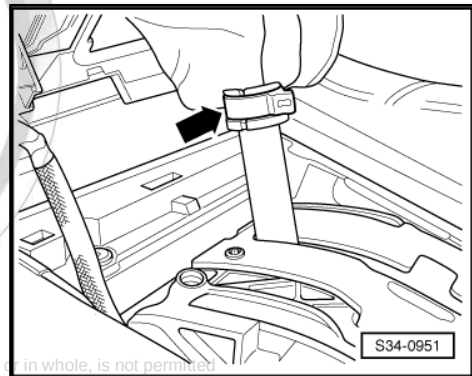


Note

- ♦ Ignore pos. -A-, -B- and -1-.
- ♦ As of manufacturing date 11.09 the gearshift mechanism is changed, the 4-pin plug connection -B- and the selector lever lock solenoid -N110- -1- are already located in the gearshift mechanism ➔ [page 26](#).



- Open the worm-type clamp -arrow- below the handle and pull off handle with cover.



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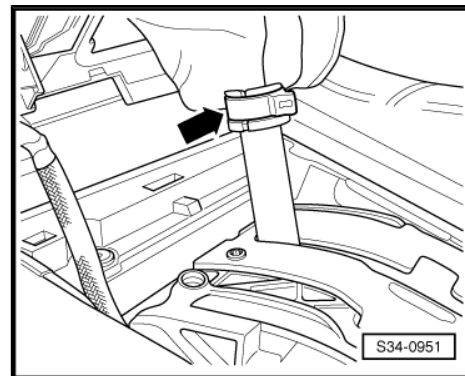
2.6.2 Install

Installation is performed in the reverse order, pay attention to the following points:



Note

- ◆ The lock button must be fully pulled out for installing the selector lever grip. Then the grip must be secured using a cable strap -arrow- or with the assembly aid which was factory-delivered together with the new grip.
- ◆ If the lock button is not secured, it can no longer be pulled out of the selector lever grip using mechanical auxiliary tools. The lock button can be pulled out by positioning the gun with compressed air underneath the grip.



- Fit the selector lever grip completely onto the selector lever with a new warm-type clamp - with the lock button towards the driver.
- During this procedure, the grip must latch in the annular groove on the selector lever.
- Remove cable strap or assembly aid. After the removal, the lock button actuator engages into the vertical groove on the selector lever. If necessary, press the lock button into the selector lever grip.

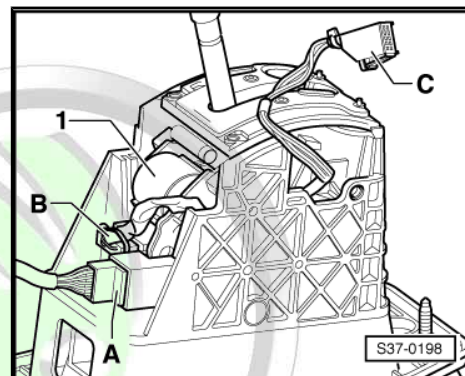
Tighten warm-type clamp using hose binding claw .

- Insert the plug connection -C- for lamp for selector lever scale illumination -L101- .



Note

- ◆ When inserting the plug connection -C- ensure that the contact pins of the lamp for selector lever scale illumination -L101- are not bent and that the retaining lugs of the cover do not break off.
- ◆ Ignore pos. -A-, -B- and -1-.
- ◆ As of manufacturing date 11.09 the gearshift mechanism is changed, the 4-pin plug connection -B- and the selector lever lock solenoid -N110- -1- are already located in the gearshift mechanism ⇒ [page 26](#) .



2.7 Removing and installing shift mechanism

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2.7.1 Removing

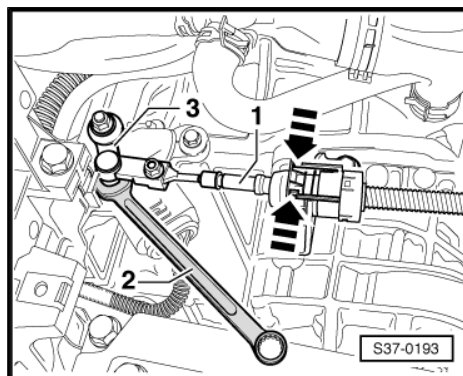
- Removing the handle and cover for the shift mechanism ⇒ [page 27](#) .
- Shift selector lever into position “P”.
- Switch off ignition.



Note

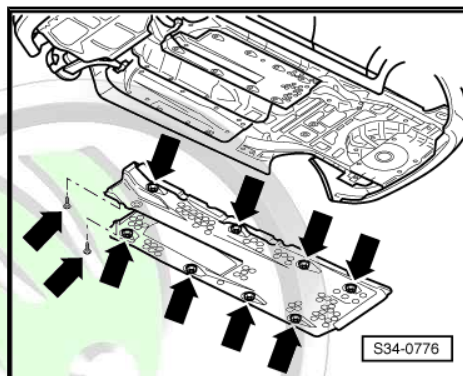
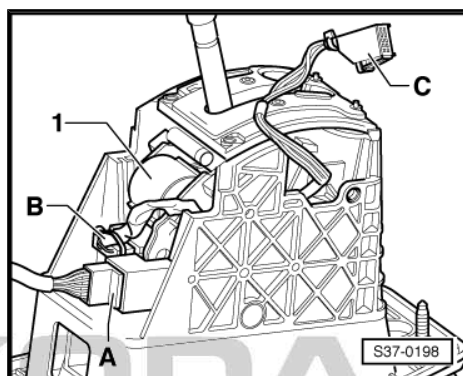
If the battery earth strap is disconnected and connected, carry out additional operations ⇒ Electrical System ⇒ Rep. Gr. 27 .

- Disconnect the battery-earth strap with the ignition off ⇒ Electrical System ⇒ Rep. Gr. 27 .
- Remove engine cover.
- Remove air guide hose.
- Remove air filter ⇒ Engine ⇒ Rep. Gr. 24 .
- Lever off the selector lever control cable -1- from gearshift shaft lever -3- e.g using an open-end wrench -2-.
- Compress catches at support of selector lever cable -arrows- and pull out the selector lever control cable from the support/gearbox.
- Remove ashtray or storage area in front of the shift mechanism ⇒ Body Work ⇒ Rep. Gr. 68 .
- Remove centre console ⇒ Body Work ⇒ Rep. Gr. 68 .
- Disconnect plug connection -A- from the shift mechanism to the vehicle wiring harness.

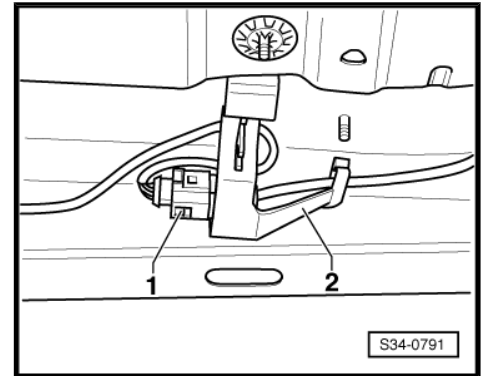


Note

- ♦ *Ignore pos. -B-, -C- and -1-.*
- ♦ *As of manufacturing date 11.09 the gearshift mechanism is changed, the 4-pin plug connection -B- and the selector lever lock solenoid -N110- -1- are already located in the gearshift mechanism ⇒ [page 26](#) .*
- Raise vehicle.
- Remove vehicle floor cover on right and left -arrows-.
- Detach tunnel bridges below the exhaust system ⇒ Engine ⇒ Rep. Gr. 26 .



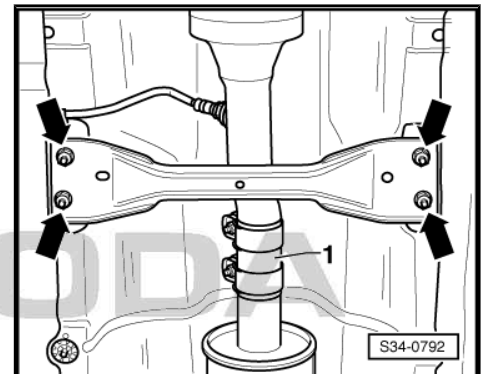
- Disconnect plug connection -1-, remove insertion clamp out of the bracket -2- and expose wiring to lambda probe downstream of catalytic converter.



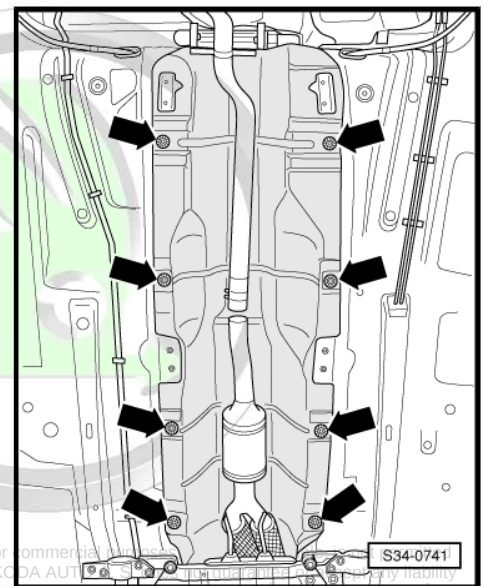
- Separate exhaust system at the double clamp -1-.
- Unhook front and rear silencer ⇒ Engine ⇒ Rep. Gr. 26 .

i Note

The decoupling element in the pre-exhaust pipe should not be bent by more than 10° - danger of damaging it.

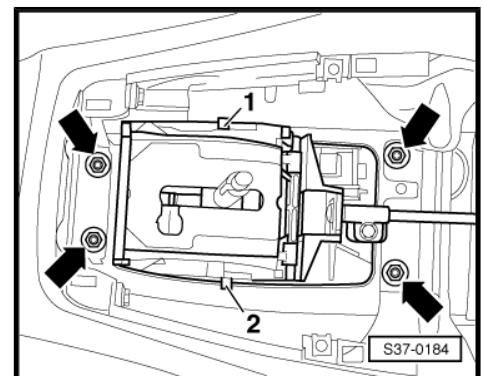


- Clip off clips -arrows- and remove shield.



- Unscrew the nuts -arrows-.
- Remove the shift mechanism together with the selector lever control to the bottom, ensuring the selector lever control cable does not get bent and kinked.

The shift mechanism (only vehicles up to manufacturing date 10.09 ("old shifting" ⇒ [page 23](#)) can also be replaced without selector lever control cable, to do so the selector lever control cable must be separated from the shift mechanism, remove the selector lever control cable ⇒ [page 33](#) .



2.7.2 Install

Installation is performed in the reverse order, pay attention to the following points:



Note

Do not bend or buckle selector lever control cable.

- Insert the shift mechanism and tighten the rear nuts -1- by hand.
- Mount the strut for centre console -3- onto the shift mechanism as illustrated in the fig.
- Tighten nuts -1- and -2- to tightening torque.

Tightening torques of screws or nuts as well as the instruction, if the screws or nuts have to be replaced:

- ♦ Vehicles up to manufacturing date 10.09 ("old shifting")
⇒ [page 23](#)
- ♦ Vehicles as of manufacturing date 11.09 ("new shifting")
⇒ [page 26](#)

The fitting together of the plug connection -A- must not be performed, if the plug connector housing is latched into the shift mechanism. When fitting together (high resistance because of the spring) the catch of the plug connector housing breaks off.

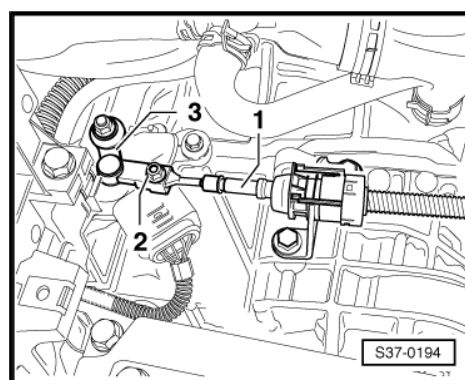
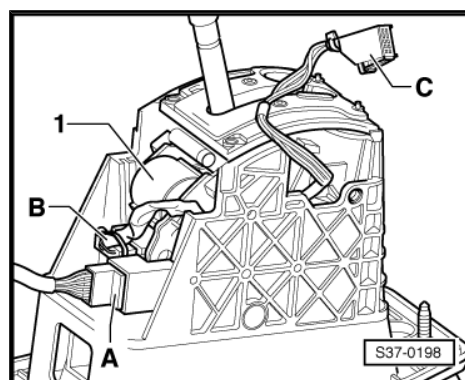
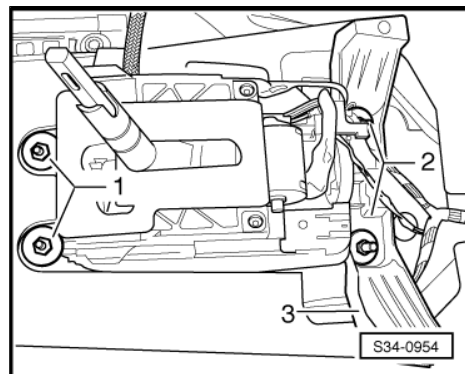
- Connect plug -A- and plug connector housing and then latch into the shift mechanism.



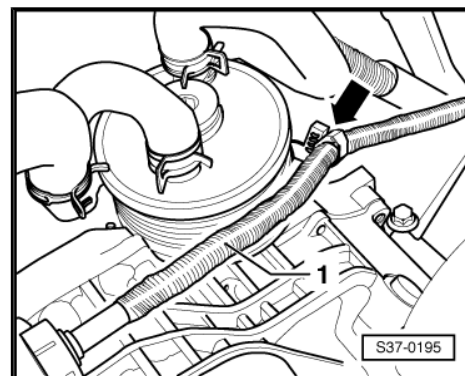
Note

As of manufacturing date 11.09 the gearshift mechanism is changed, the 4-pin plug connection -B- and the selector lever lock solenoid -N110- -1- are already located in the gearshift mechanism ⇒ [page 26](#).

- Insert selector lever control cable -1- in the support/gearbox and carefully push onto the gearshift shaft lever -3-. Do not bend the gearshift shaft lever, otherwise it will no longer be possible to set gearshift operation exactly.



- Hang the selector lever control cable -1- in the clip -arrow- at the gearbox. For the routing of the selector lever control cable to the ATF cooler maintain a distance of at least 5 mm.
- Install exhaust system and align free of stress ⇒ Engine ⇒ Rep. Gr. 26 .
- Installing the handle and cover for the shift mechanism ⇒ [page 27](#) .
- Check operation of the ignition key anti-removal lock ⇒ [page 22](#)
- Setting selector lever control cable ⇒ [page 21](#) .
- Inspect gearshift mechanism ⇒ [page 20](#) .
- Install air filter ⇒ Engine ⇒ Rep. Gr. 24 .
- Connect earth strap of battery ⇒ Electrical System ⇒ Rep. Gr. 27 .



i Note

If the battery earth strap is disconnected and connected, carry out additional operations ⇒ Electrical System ⇒ Rep. Gr. 27 .

2.8 Removing and installing the selector lever control cable

i Note

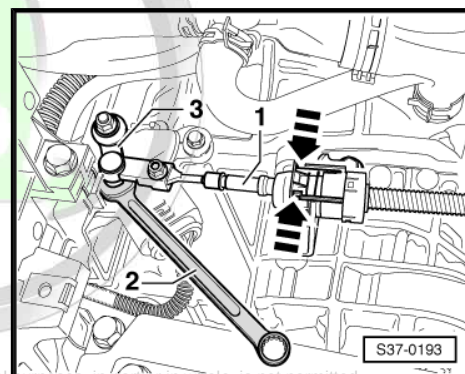
The selector lever control cable was replaced as a separate component on vehicles up to manufacturing date 10.09 ("old shifting") ⇒ [page 23](#) . As of manufacturing date 11.09 ("new shifting") this is no longer possible, the selector lever control cable must not be removed (separated) from the shift mechanism, it must be replaced together as one component part ⇒ Electronic Catalogue of Original Parts .

2.8.1 Removing

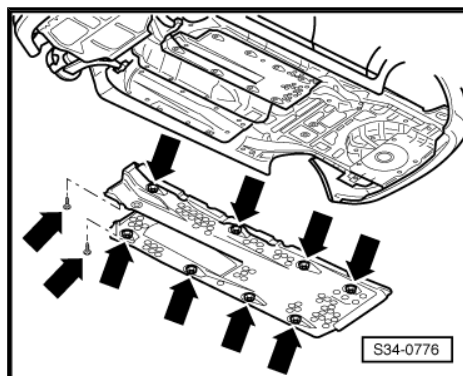
- Shift selector lever into position "S".

Vehicles up to manufacturing date 10.09 ("old shifting")

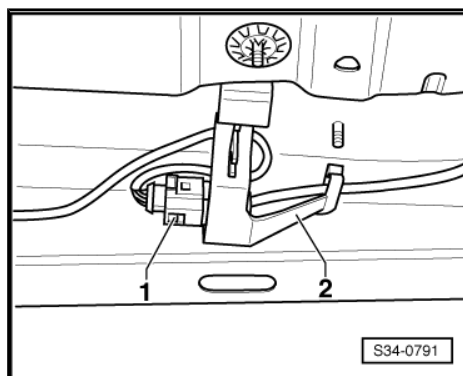
- Switch off ignition.
- Remove engine cover.
- Remove air guide hose.
- Remove air filter ⇒ Engine ⇒ Rep. Gr. 24 .
- Lever off the selector lever control cable -1- from gearshift shaft lever -3- e.g using an open-end wrench -2-.
- Compress catches at support of selector lever cable -arrows- and pull out the selector lever control cable from the support/gearbox.



- Remove vehicle floor cover on right and left -arrows-.
- Detach tunnel bridges below the exhaust system ⇒ Engine ⇒ Rep. Gr. 26 .



- Disconnect plug connection -1-, remove push-fit coupling out of the bracket -2- and expose wiring to lambda probe heater downstream of catalytic converter.



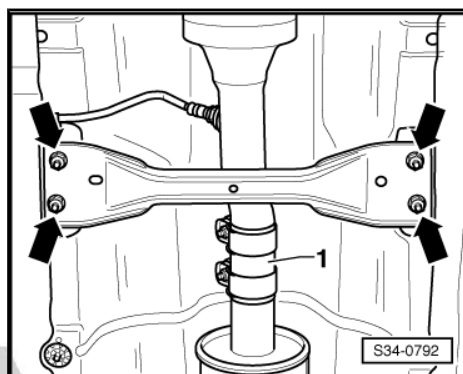
- Separate exhaust system at the clamping sleeve -1-.



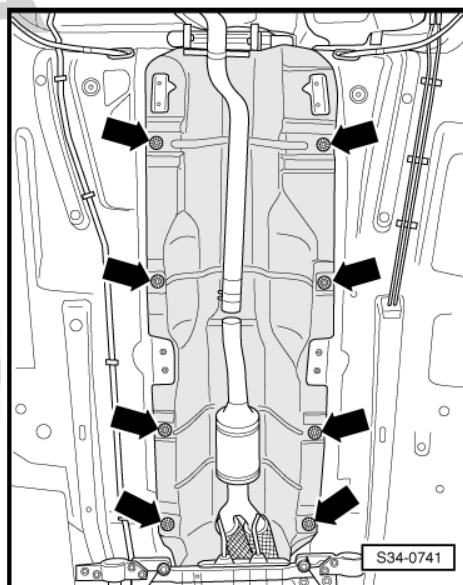
Note

The decoupling element in the pre-exhaust pipe should not be bent by more than 10° - danger of damaging it.

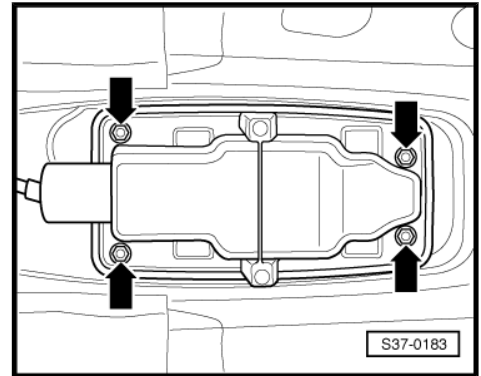
- Unhook front and rear silencer ⇒ Engine ⇒ Rep. Gr. 26 .



- Clip off clips -arrows- and remove shield.
- Unscrew the nuts -arrows-.



- Unscrew cover for shift mechanism -arrows-.
- Carefully slide the cover with boot over the selector lever control cable forward. At the same time do not damage the boot.

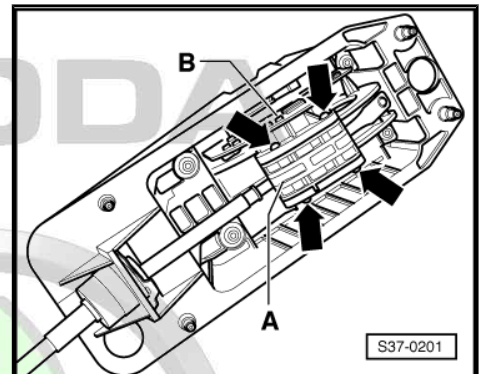


- Release screws -arrows-.



WARNING

- ◆ *Under no circumstances touch the circuit board -B- of the gearshift mechanism with the fingers, because static discharge can destroy the electrical components and the circuit board.*
- ◆ *The circuit board can only be replaced together with the gearshift mechanism!*



- Detach catch plate -A- from the gearshift mechanism.



Note

The catch plate is clipped to the left and to the right with retaining lugs.

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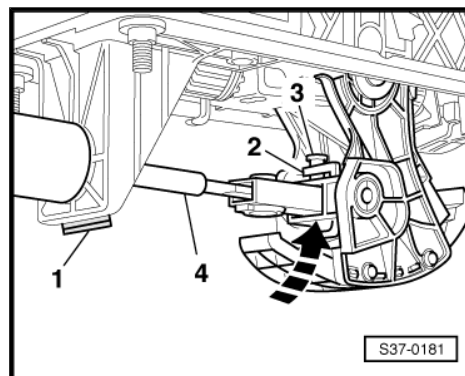
- Pull out the locking clasp -1- for the selector lever control on the gearshift mechanism downwards.
- Pull the plastic securing ring -2- slightly forwards and only push the pin -3- as far as necessary upwards -arrow-.



Note

Make sure that the pin is not fully pressed out.

- Pull selector lever control cable -4- out of the gearshift mechanism.



Note

Do not bend or buckle selector lever control cable.

Vehicles as of manufacturing date 11.09 ("new shifting")



Note

*The selector lever control cable (vehicles as of manufacturing date 11.09 ("new shifting" ➔ [page 26](#)) must not be removed from the shift mechanism, it must be replaced as one component part ➔ *Electronic Catalogue of Original Parts* .*

- Remove the shift mechanism together with the selector lever control cable ➔ [page 29](#) .

Continued for vehicles up to manufacturing date 10.09 ("old shifting")

- Remove selector lever control cable.

2.8.2 Install

Installation is performed in the reverse order, pay attention to the following points:



Note

- ♦ *Inspect boot for damage; the boot must be replaced together with the selector lever control cable.*
- ♦ *Check correct fitting of the boot and do not install the boot twisted.*

Tightening torques of screws or nuts as well as the instructions, if the screws or nuts have to be replaced ➔ [page 23](#) .

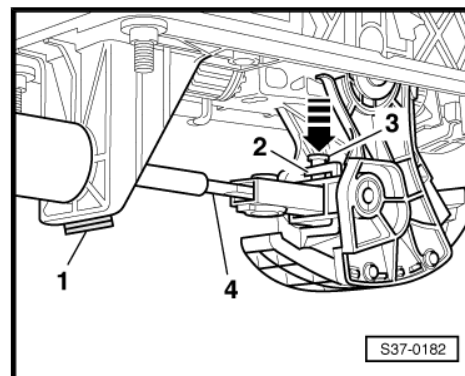
Vehicles up to manufacturing date 05.09 ("old shifting")



WARNING

- ♦ *Under no circumstances touch the circuit board -B- of the gearshift mechanism with the fingers, because static discharge can destroy the electronic components and the circuit board.*
- ♦ *The circuit board can only be replaced together with the gearshift mechanism!*

- Insert the end of the selector lever control cable -4- into the joint of the selector lever.
- Push the pin -3- downwards -arrow-.
- Check if the plastic securing spring -2- has locked the pin.
- Fit new locking clasp -1- for selector lever control cable at the gearshift mechanism.
- Fitting location: Angled end of locking clasp points towards the inside of the gearshift mechanism.



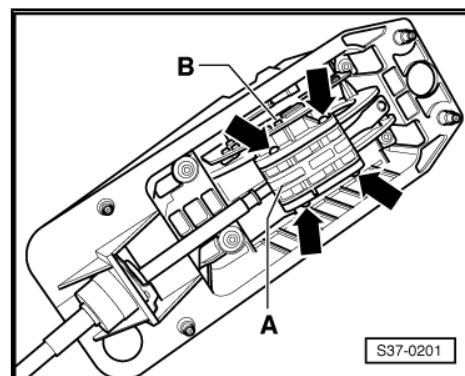
- Install catch plate -A-.



Note

The catch plate is clipped to the left and to the right with retaining lugs.

- Screw in screws -arrow-.
- Shift selector lever into position “P”.
- Screw on cover with affixed gasket at bearing pot by hand. Watch out for the correct arrangement of the seal.
- Screw on cover for bottom shift mechanism -arrows- and tighten to tightening torque ➔ [page 23](#).
- Insert the boot of the selector lever control cable into the cover.

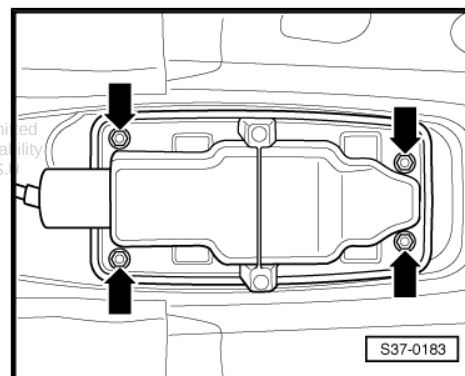


Vehicles as of manufacturing date 06.09 (“new shifting”)



Note

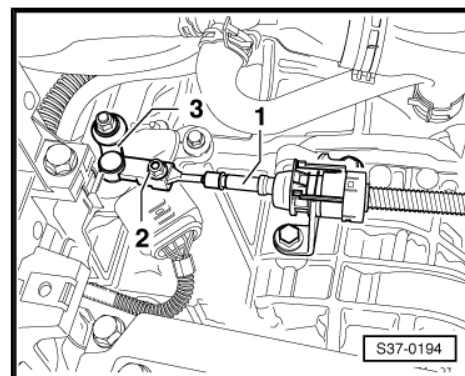
*The selector lever control cable (vehicles as of manufacturing date 11.09 (“new shifting” ➔ [page 26](#))) must not be removed from the shift mechanism, it must be replaced as one component part ➔ *Electronic Catalogue of Original Parts*.*



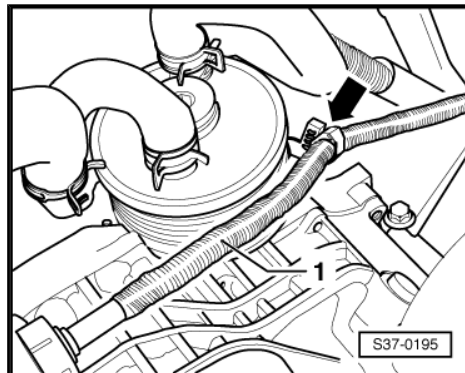
- Install the shift mechanism together with the selector lever control cable ➔ [page 32](#)

Continued for all vehicles

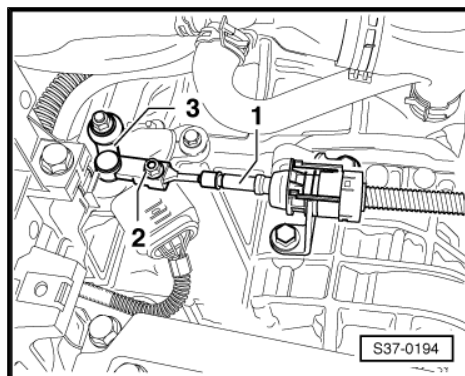
- Push the gearshift shaft lever -3- on the gearbox to the rear into position “P” (in the fig.: to the right), until the parking position catches. Both front wheels are blocked (cannot be simultaneously turned in one direction).



- Hang the selector lever control cable -1- in the clip -arrow- at the gearbox. For the routing of the selector lever control cable to the ATF cooler maintain a distance of at least 5 mm.



- Release screw -2- at the front ball socket of the selector lever control cable -1-.
- Insert selector lever control cable in the support/gearbox and carefully push onto the gearshift shaft lever. Do not bend the gearshift shaft lever, otherwise it will no longer be possible to set gearshift operation exactly.
- Tighten screw -2- to 13 Nm.
- Shift selector lever from “P” to “S” and shift back again.
- Gearshift mechanism and selector lever control cable must move smoothly when shifting gears, if necessary replace selector lever control cable or repair gearshift mechanism.
- Install exhaust system and align free of stress ⇒ Engine ⇒ Rep. Gr. 26 .
- Installing the cover for the shift mechanism ⇒ [page 27](#) .
- Pay attention to the measures after connecting the battery ⇒ Electrical System ⇒ Rep. Gr. 27 .
- Inspect gearshift mechanism ⇒ [page 20](#) .
- Remove air filter ⇒ Engine ⇒ Rep. Gr. 24 .



2.9 Removing and installing the Tiptronic switch -F189-

The Tiptronic switch is integrated firmly in the gearshift mechanism and cannot be replaced separately. To replace, the gearshift mechanism must be replaced ⇒ [page 29](#) .

2.10 Removing and installing selector lever lock solenoid -N110-

The selector lever lock solenoid is integrated firmly in the gearshift mechanism and cannot be replaced separately. To replace, the gearshift mechanism must be replaced ⇒ [page 29](#) .

2.11 Check the plug connections at the gearshift mechanism

- Before repairing or checking the plug connections, try to determine the origin of the damage as accurately as possible using the ⇒ Vehicle diagnosis, testing and information system VAS 5051 in the functions “Targeted fault finding”, “Vehicle self-diagnosis” and “Measuring method”.
- Before checking the plug connections, all control units in the vehicle should be checked for fault entries and if necessary the faults must be rectified.

Plug connections at the gearshift mechanism

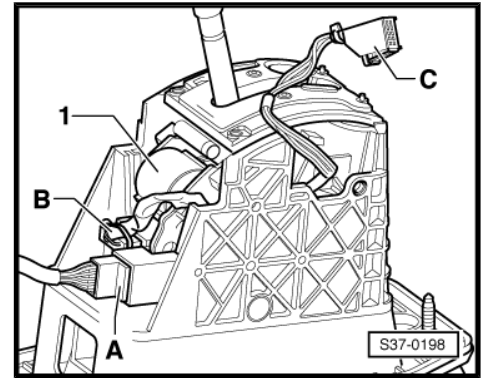
A - 10-pin plug connection for connection lines from the gearshift mechanism to the automatic gearbox control unit -J217-

B - 4-pin plug connection to selector lever lock solenoid -N110- and selector lever switch blocked -F319- in P

C - 10-pin plug connection for cover of gearshift mechanism

- Check operation of the ignition key anti-removal lock

⇒ page 22



2.12 Emergency release of gearshift mechanism out of position "P"

Selector lever lock solenoid -N110- locks the selector lever in position "P". The selector lever can only be moved out of "P" when ignition on or starting the engine, the brake pedal is actuated and the button on the selector lever knob is pressed.

If there are faults in the voltage supply to the selector lever lock solenoid (battery discharged or fuse defective) or in case of defective solenoids, the selector lever cannot be moved out of the position "P", i.e the vehicle cannot be moved because the parking position is engaged.

If this is the case:

- Test fuses ⇒ Current flow diagrams and Fitting locations.
- Check battery charge state ⇒ Electrical System ⇒ Rep. Gr. 27 .

If the selector lever cannot be moved out of the position "P" despite the troubleshooting, the emergency release of the solenoids can be performed. If the selector lever is then shifted again into the position "P", it is blocked again in the position "P".

2.12.1 Perform emergency release

Special tools and workshop equipment required

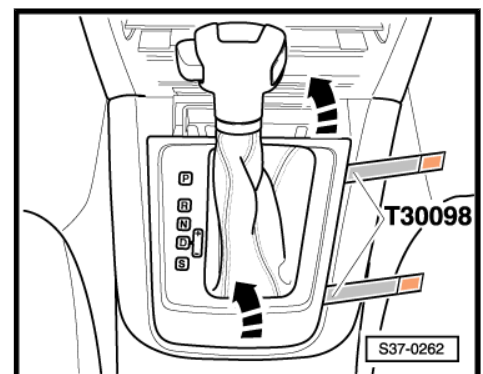
- ◆ Release tool -T30098-
- Open ashtray in the centre console.
- Release the front right cover -arrow- using the release tool -T30098- . Then release the rear right and centre cover -arrow-.

Carefully slacken the cover.

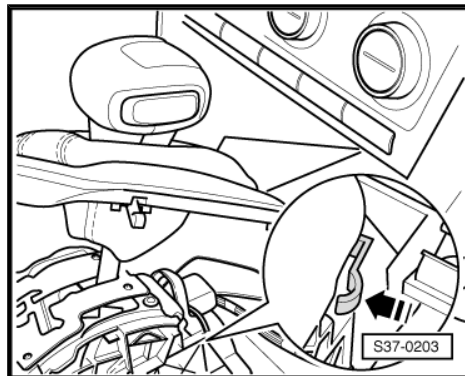


Note

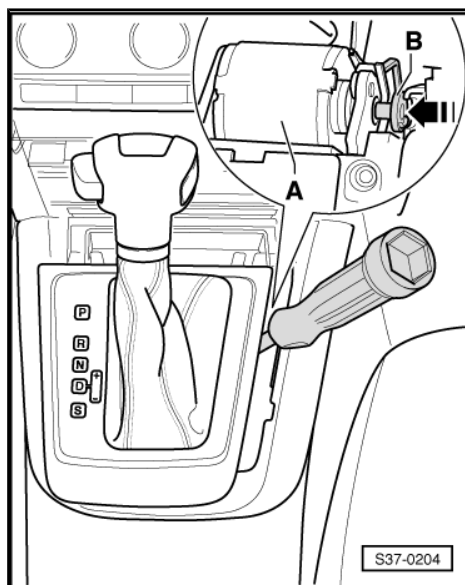
Do not remove grip of selector lever.



- Carefully insert a screwdriver from the top into the opening (retaining eye) at the side of the cover -arrow-.



- Release the selector lever lock solenoid -A- using a screwdriver -1-.
- To do so press the lever -B- to the inside -arrow- using a screwdriver and hold it in this position. This releases the solenoid from the selector lever.



Vehicles as of manufacturing date 06.09 ("new shifting")

- Press the yellow plastic wedge -A- in -direction of arrow 1-.
- Now press the button on the selector lever grip and move the selector lever -B- in -direction of arrow 2- out of the position "P".

Continued for all vehicles



WARNING

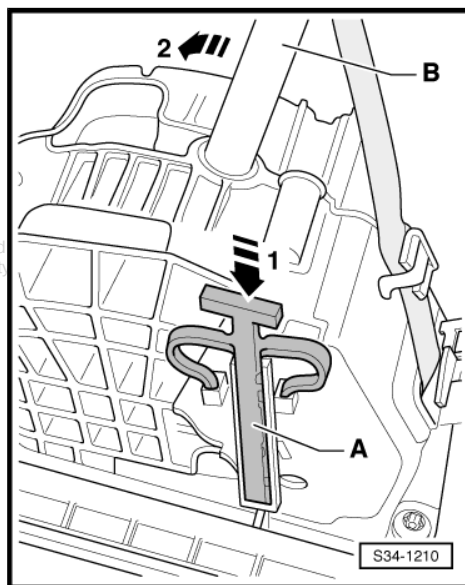
The gearshift mechanism can only be replaced completely, i.e. if the parts of the gearshift mechanism are damaged, then the gearshift mechanism must be replaced completely.

- Now press the button on the selector lever knob and move the selector lever out of the position "P".



Note

If the selector lever is then shifted again into the position "P", it is blocked again in the position "P".



3 Removing and installing the gearbox

Special tools and workshop equipment required

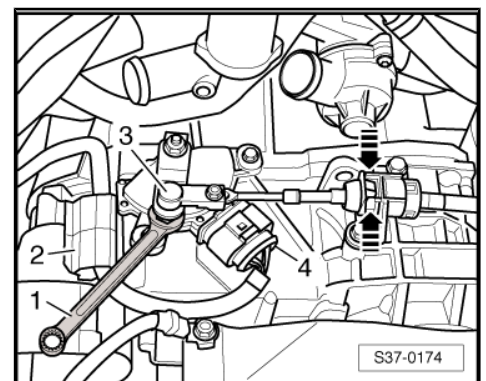
- ◆ Supporting device -T30099-
- ◆ Base -T30099/1-
- ◆ Hook -MP9-200/10-
- ◆ Engine/gearbox jack -V.A.G 1383 A -
- ◆ Hose clamp -MP7-602 (3094)-
- ◆ Gearbox mount -3282-
- ◆ Adjusting plate -3282/36-
- ◆ Alignment rail -MP3-457/2 (VW 457) -
- ◆ Supporting device for engine -MP3-470 (3300 A)-
- ◆ Wedge -T10161-

3.1 Removing the gearbox

- Remove engine cover.

Note

- ◆ *If the battery earth strap is disconnected and connected, carry out additional operations ⇒ Electrical System ⇒ Rep. Gr. 27.*
- ◆ *All cable straps which are detached or cut open when removing, should be fitted on again in the same place when installing.*
- Disconnect the battery-earth strap with the ignition off ⇒ Electrical System ⇒ Rep. Gr. 27 .
- Remove air filter ⇒ Engine ⇒ Rep. Gr. 24 .
- Remove battery and battery tray ⇒ Electrical System ⇒ Rep. Gr. 27 .
- Remove the cooling water tank cover ⇒ Body Work ⇒ Rep. Gr. 66 .
- Shift selector lever into position "P".
- Lever off the selector lever control cable -3- from gearshift shaft lever e.g using an open-end wrench -1-.
- Compress catches at support of selector lever cable -arrows- and pull out the selector lever control cable from the support/gearbox.
- Disconnect plug connection -4- and expose cable at bracket -2-.
- Unscrew support for selector lever control cable from the gearbox.



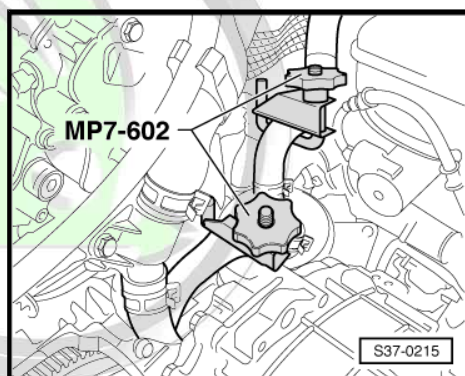
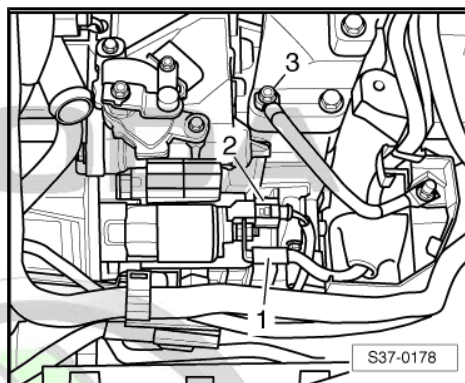
- Unscrew earth strap -3-.
- Detach cables -1- and -2- at starter and expose.
- Mark hoses of ATF radiator to ATF radiator, in order to prevent interchanging when installing.



Note

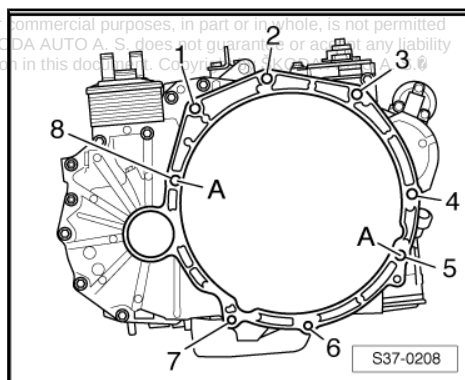
Depending on the as-built configuration a small plastic tube is located in the feed of the ATF radiator, which must be re-installed during installation.

- Clamp off the ATF-radiator hoses with hose clamps -MP7-602 (3094)- and remove from ATF-radiator.
- Close ATF-radiator with a clean plug.
- Release all connecting screws of the engine/gearbox accessible from the top.

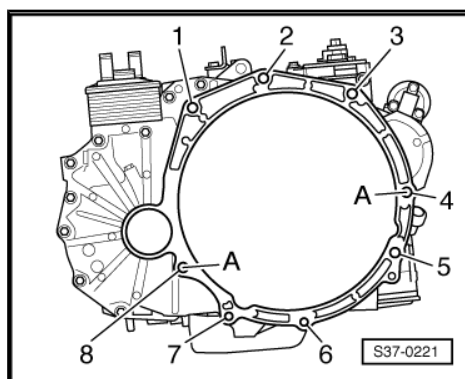


Vehicles with 1.6-ltr. FSI (85 kW) engine:

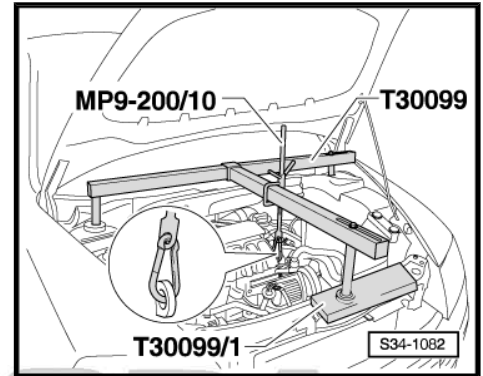
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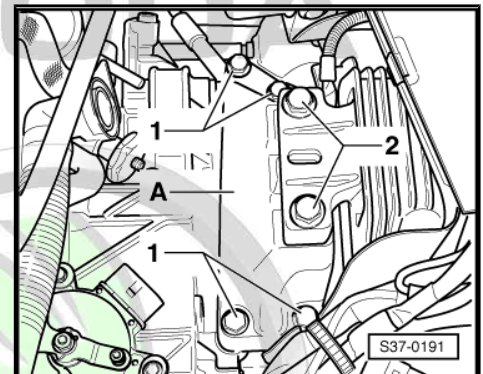
Vehicles with 2.0-ltr. FSI (110 kW) engine and vehicles with 1.6-ltr. 2V (75 kW) engine:



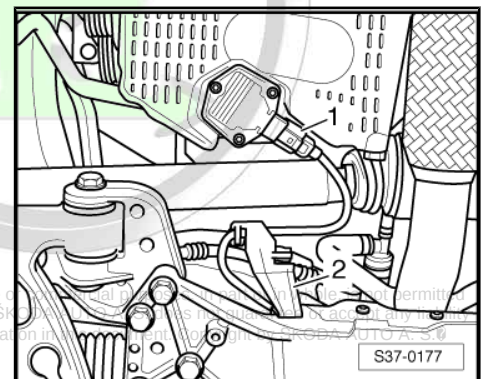
- Fit supporting device -T30099- .
- Take up the weight of the engine/gearbox unit at the spindles.



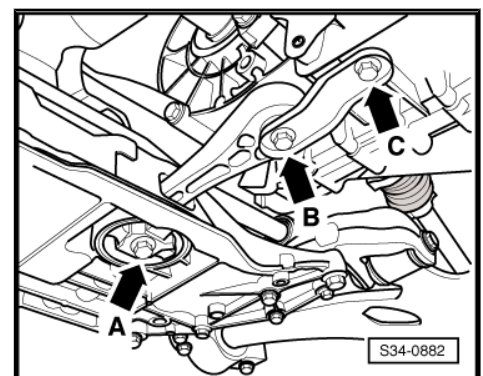
- Remove gearbox console -A-, to this end release screws -1- and -2-.
- Remove both front wheels.
- Remove noise insulation ⇒ Body Work ⇒ Rep. Gr. 50 and lower part of the front wheelhouse liners ⇒ Body Work ⇒ Rep. Gr. 66 .



- Separate plug connection -1- at oil level/temperature sender -G266- .
- Unclip bracket -2- for electrical cable to oil level/temperature sender -G266- at assembly carrier.

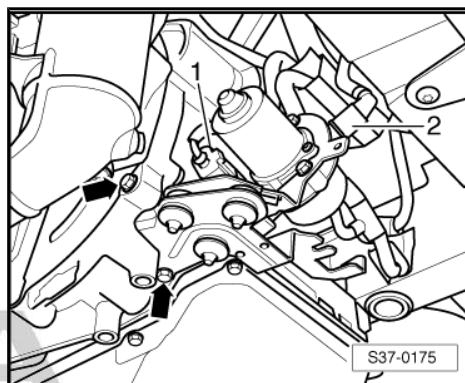


- Remove pendulum support -arrows A, B- and -C-.

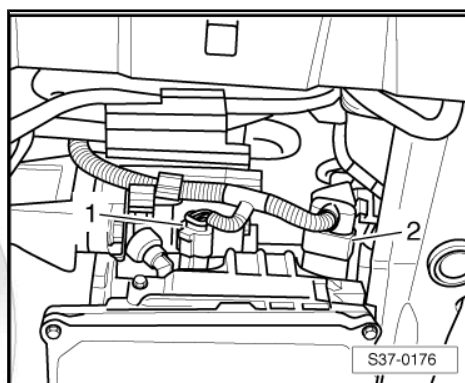


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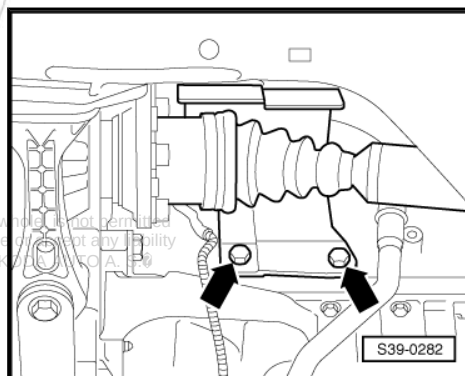
- Disconnect plug connection -1-.
- Release vacuum hose -2-.
- Release screws -arrows- and remove vacuum pump for brake servo unit.



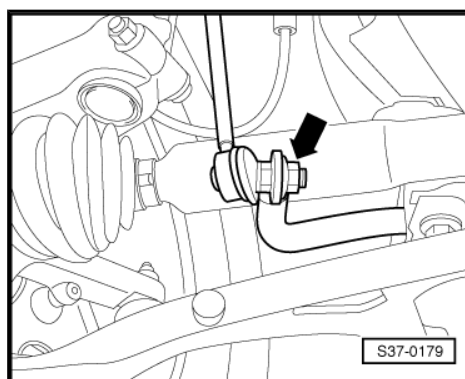
- Separate plug connections -1- and -2- at automatic gearbox.
- Unscrew bracket for electrical cables from the lower starter fixing screw.
- Tie up bracket with the electrical cables to the front.
- Remove the starter ⇒ Electrical System ⇒ Rep. Gr. 27 .



- Remove cap for drive shaft from the engine -arrows-.
- Remove front exhaust pipe from exhaust manifold ⇒ Engine ⇒ Rep. Gr. 26 .

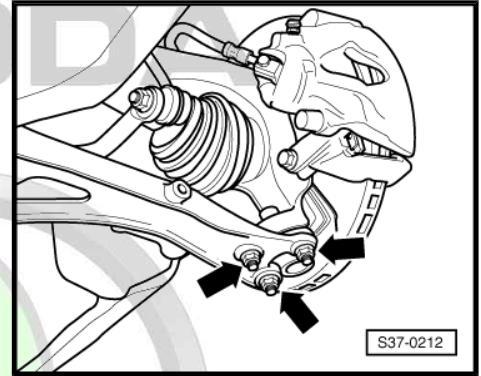


- Unscrew nut -arrow- on both vehicle sides and remove coupling rods from anti-roll bar.

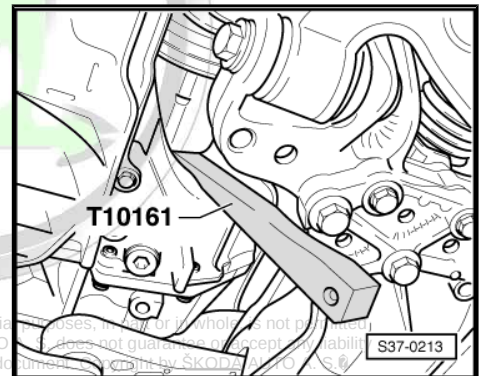


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- Unscrew nuts -arrows- at left steering joint.
- Slacken nut (if fitted on the vehicle) at bracket of front left vehicle level sender -G78- .
- Unhook suspension arm from track control arm.



- Swivel out the suspension strut, to do so press the drive shaft out of the wheel bearing unit using the wedge -T10161- .
- Tie up drive shaft.
- Repeat procedure on the opposite side of the vehicle.

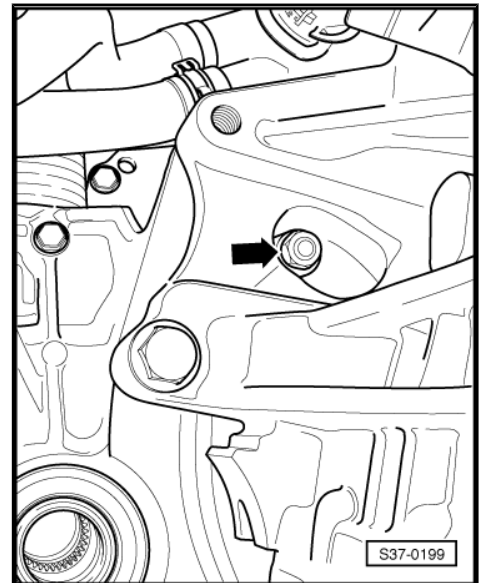


- Remove the cap from the opening for the converter nuts.
- Unscrew the 6 nuts -arrow- from the torque converter. To do so turn the crankshaft each time a further 60°.

i Note

If not all 6 nuts are unscrewed from the torque converter, the torque converter is pulled out when removing the gearbox from the engine!

- Lower the engine/gearbox assembly with the spindle approx. 50 mm.

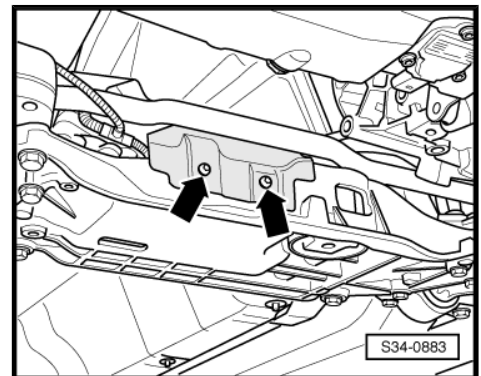


- Remove heat shield for the power-assisted steering control unit -J500- from the assembly carrier -arrows-.

i Note

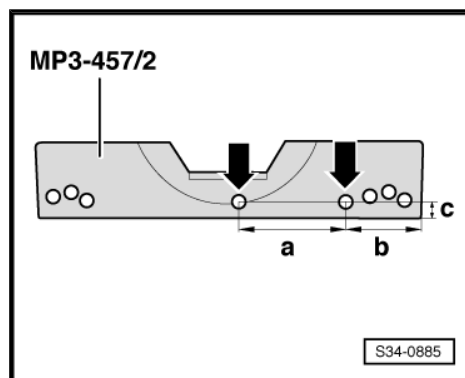
If required the alignment rail -MP3-457/2 (VW 457)- has to be adapted ➔ [page 45](#).

Adapt alignment rail -MP3-457/2 (VW 457)-

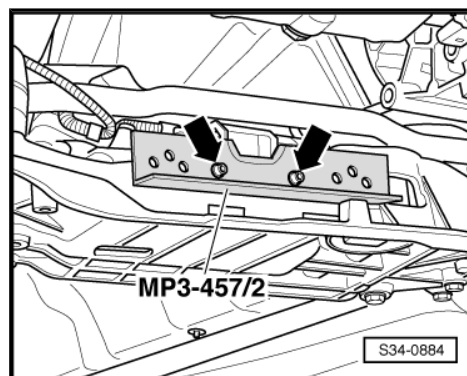


- Fit 2 holes -arrows- $\varnothing$ 7 mm on the alignment rail -MP3-457/2 (VW 457)- .

- ◆ Dimension -a- = 70 mm
- ◆ Dimension -b- = 48 mm
- ◆ Dimension -c- = 11 mm



- Screw down alignment rail -MP3-457/2 (VW 457)- with bolts M6x20 -arrows- onto the assembly carrier.



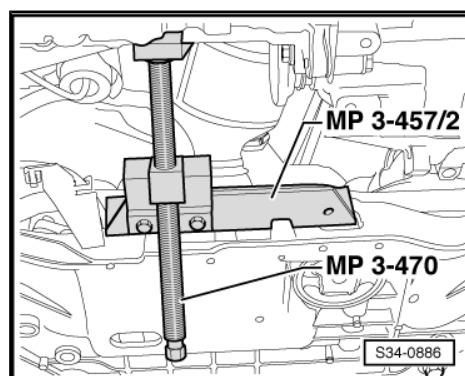
ŠKODA

- Position the supporting device for engine -MP3-470 (3300 A)- onto the alignment rail -MP3-457/2 (VW 457)- .
- Carefully press the engine/gearbox forwards via the spindle of the supporting device for engine -MP3-470 (3300 A)-

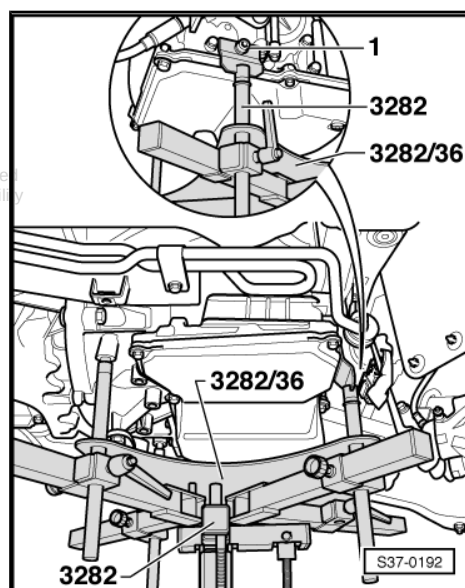


Note

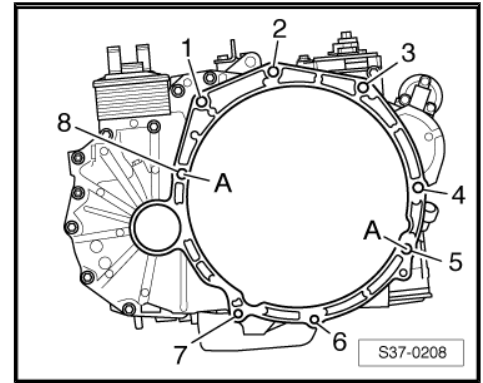
Observe all cables when displacing the engine/gearbox unit.



- Mount engine/gearbox mount - 3282- onto engine/gearbox jack -V.A.G 1383 A- .
- Position adjusting plate -3282/36 - onto the gearbox mount -3282- (adjusting plate fits in only one position).
- Align arms of the gearbox mount with the holes in the adjusting plate.
- Screw in the mounting elements as shown on the adjusting plate.
- Position engine/gearbox jack -V.A.G 1383 A- below vehicle, arrow symbol on adjusting plate points in the direction of travel.
- Align the adjusting plate parallel to the gearbox.
- Secure the gearbox on the gearbox support -3282- using screw -1-.
- Position gearbox by lifting the gearbox mount from the bottom.
- Unscrew the remaining connecting screws of the engine/gearbox.

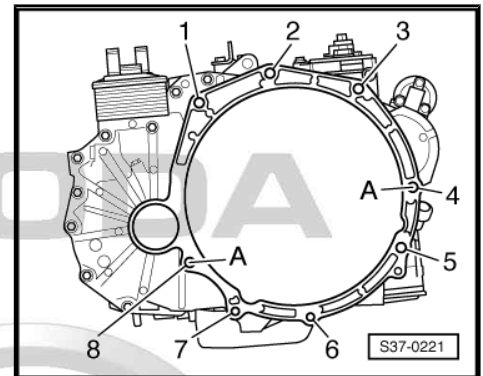


Vehicles with 1.6-ltr. FSI (85 kW) engine:

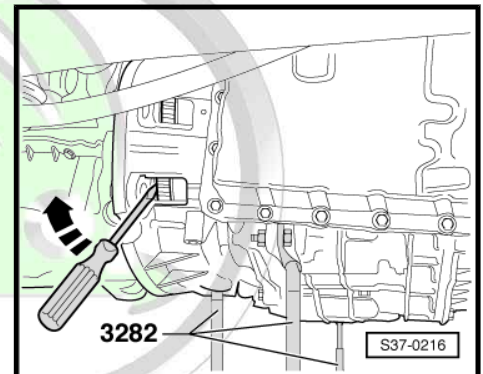


Vehicles with 2.0-ltr. FSI (110 kW) engine and vehicles with 1.6-ltr. 2V (75 kW) engine:

- Push gearbox off engine, simultaneously press off the torque converter from the driver disc.



- Push torque converter against the ATF-pump -arrow-.
- Carefully swivel gearbox towards the assembly carrier.
- Carefully lower the gearbox and guide past the assembly carrier downwards.
- Change the gearbox position at the spindles of the gearbox mount -3282- when lowering.
- Secure torque converter against dropping out.



3.2 Installing the gearbox

Installation is carried out in the reverse order. Pay attention to the following:

Installation is carried out in the reverse order. Pay attention to the following:
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Note

- ◆ When performing installation work replace the self-locking nuts and screws.
- ◆ Replace screws which have been tightened to a turning angle as well as gasket rings and seals.
- ◆ Check whether the dowel sleeves for centering the gearbox are present in the cylinder block; insert if necessary.
- ◆ Secure all hose connections with hose clamps which comply with the series design ⇒ *Electronic Catalogue of Original Parts*.
- ◆ All cable straps which are detached or cut open when removing, should be fitted on again in the same place when installing.
- ◆ Before installing the gearbox one should ensure that the torque converter is correctly installed in the gearbox ⇒ [page 11](#).



WARNING

If the converter is installed wrongly the driver of the torque converter or the ATF pump will be destroyed when the gearbox on the engine is connected at its flange.

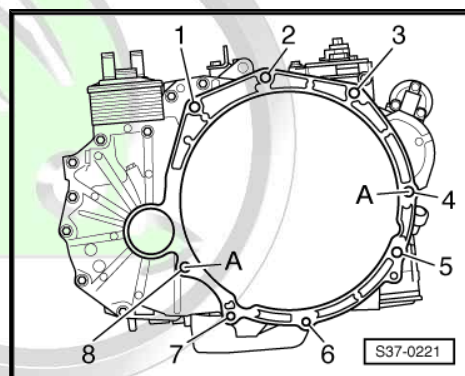
- Inspecting ATF level, if necessary topping up ⇒ [page 52](#).
- Inspect setting of selector lever control cable and adjust if necessary ⇒ [page 21](#).
- Check coolant level in the cooling system ⇒ Engine ⇒ Rep. Gr. 19.

3.2.1 Tightening torques

Vehicles with 2,0-ltr. FSI (110 kW) engine:

Gearbox to engine

Pos.	Screw	Pieces	Nm
1	M12 x 55	1	80
2	M12 x 55	1	80
3 1) 2)	M12 x 155	1	80
4 1) 2)	M12 x 165	1	80
5	M10 x 65	1	40
6	M10 x 55	1	40
7	M10 x 55	1	40
8	M12 x 85	1	80
A	Dowel sleeves for centering		



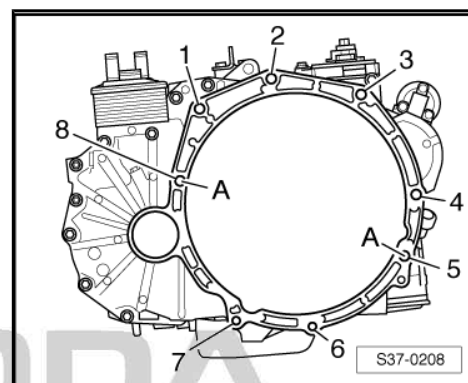
1) Screw with threaded pin M8.

2) This screw attaches additionally the starter at the gearbox.

Vehicles with 1.6-ltr. FSI (85 kW) engine:

Gearbox to engine

Pos.	Screw	Pieces	Nm
1	M12 x 55	1	80
2	M12 x 55	1	80
3	M12 x 55	1	80
4 1) 2)	M12 x 180	1	80
5	M12 x 80	1	80
6	M10 x 50	1	40
7	M10 x 50	1	40
8	M12 x 80	1	80
A	Dowel sleeves for centering		



Note

The second screw (80Nm) M12 x 55^{1) 2)} to secure the starter to the gearbox is not shown in the illustration.

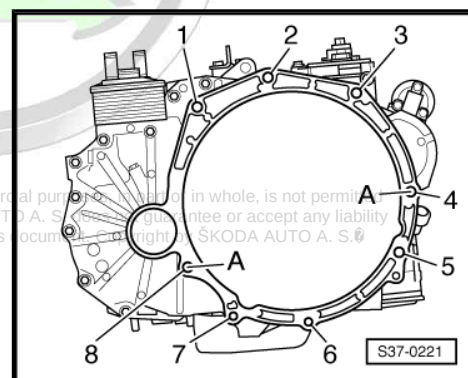
1) Screw with threaded pin M8.

2) This screw attaches additionally the starter at the gearbox.

Vehicles with 1.6-ltr. (75 kW) engine:

Gearbox to engine

Pos.	Screw	Pieces	Nm
1	M12 x 55	1	80
2	M12 x 55	1	80
3 1) 2)	M12 x 155	1	80
4 1) 2)	M12 x 165	1	80
5	M10 x 65	1	40
6	M10 x 55	1	40
7	M10 x 55	1	40
8	M12 x 100	1	80
A	Dowel sleeves for centering		



1) Screw with threaded pin M8.

2) This screw attaches additionally the starter at the gearbox.

Gearbox console to gearbox and gearbox mount

Component	Nm
Gearbox console -A- to gearbox, screws -1-	40 + 90° 1) 2)
Gearbox console -A- to gearbox mount, screws -2-	60 + 90° 1) 2)

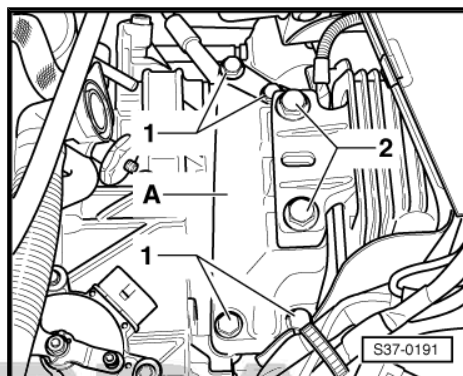
1) Replace bolts.

2) 90° corresponds to a quarter turn.



Note

Install engine/gearbox mounting free of stress ⇒ Engine ⇒ Rep. Gr. 10.



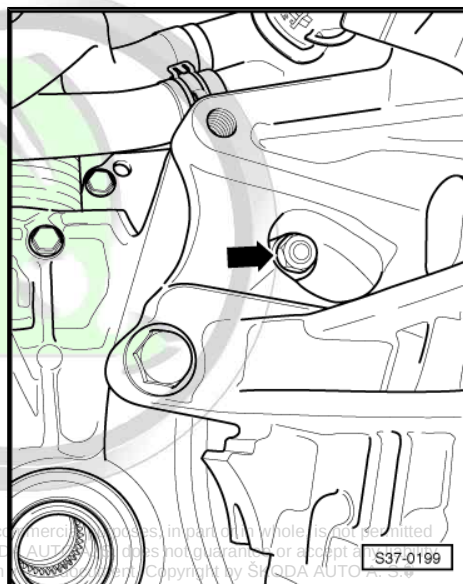
Torque converter on the driver plate

Component	Nm
Torque converter to drive plate, 6 nuts -arrow-	57 1)

1) Replace nuts.

All other bolted connections

Component		Nm
Screws/nuts	M6	10
	M8	20
	M10	45
	M12	65



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3.3 Transporting an automatic gearbox

Special tools and workshop equipment required

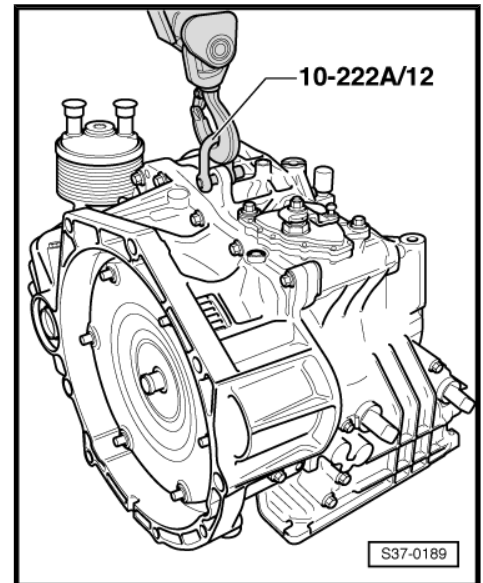
- ◆ Shackle -10-222 A/12 -

Procedure

For transporting the automatic gearbox, the shackle -10-222 A/12- can be used.

- Secure torque converter against dropping out when transporting.

- Attach shackle -10-222 A/12- to gearbox housing.



3.3.1 Attaching gearbox to assembly stand

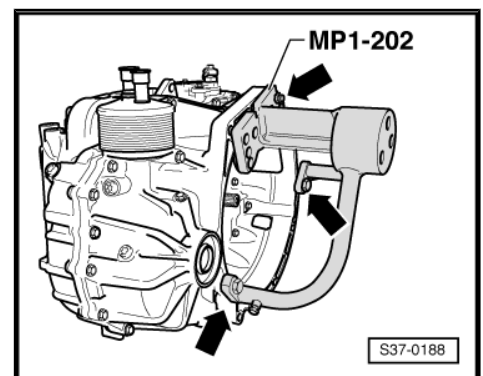
Special tools and workshop equipment required

- ◆ Engine and gearbox mount - MP1-202 (wie VW540, jedoch für Montagegeständer MP9-101)-
- Attach gearbox to engine and gearbox mount - MP1-202 (wie VW540, jedoch für Montagegeständer MP9-101)- -arrows-.
- The workshop crane can be used
⇒ [“3.3 Transporting an automatic gearbox”, page 50](#) for inserting.



WARNING

The center of gravity of the gearbox is outside the turning center at the tensioning block. For turning the gearbox, a second person must hold the gearbox housing in order to avoid a backswing.



Note

If the filled gearbox on the assembly support is turned upwards together with the oil pan, then the ventilation holes for the gearbox housing must be closed off.

4 Checking and topping up ATF level

4.1 Checking and topping up ATF level

Special tools and workshop equipment required

- ♦ Vehicle diagnosis, measurement and information system - VAS 5051-
- ♦ ATF filling system -V.A.G 1924 -
- ♦ Adapter for oil filling -VAS 6262-
- ♦ Adapter for ATF oil filling -VAS 6262/2-
- ♦ Protective goggles

Test conditions

- Gearbox must not be in the emergency running mode.
- Vehicle on level ground.
- Selector lever in position "P", engine turning on idle.
- Air conditioning and heating switched off.
- ⇒ Vehicle diagnosis, testing and information system VAS 5051 connected, function vehicle self-diagnosis and vehicle system "02 - gearbox electronics" selected.
- The ATF temperature must not be higher than 30 °C for beginning the test, if necessary first the gearbox must be cooled down.



Note

- ♦ *The ATF temperature is read off at the ⇒ Vehicle diagnosis, testing and information system VAS 5051.*
 - ♦ *The ATF level changes with ATF temperature.*
 - ♦ *Checking ATF level when ATF temperature is too low may result in over-filling.*
 - ♦ *Checking ATF level when ATF temperature is too high may result in under-filling.*
 - ♦ *Both over-filling and under-filling affect gearbox operation.*
 - ♦ *Only spare part ATF should be used for the automatic gearbox 09G. Other oils can lead to functional problems or to failure of the gearbox, spare part number ⇒ Electronic catalogue of original parts .*
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4.1.1 Inspection



Note

- ♦ *The ATF level is checked at the ATF inspection plug.*
 - ♦ *The ATF level is correct, if a small amount of fluid flows out at the ATF inspection plug when the ATF temperature is between 35° and 45°C (in hot countries 50°C) (caused by the increase of the fluid level due to the heat).*
- Fill ATF filling system with ATF for the automatic gearbox 09G.



WARNING

The ATF filling system must be clean and the ATF must not be mixed with other ATF oils!

- Attach the reservoir of the ATF filling system as high as possible to the vehicle.
- Run the vehicle on a 4-column lift platform or over a workshop pit, so that it will be kept absolutely horizontal.
- Remove noise insulation ⇒ Body Work ⇒ Rep. Gr. 50 .
- Position the catch pan under the gearbox.



WARNING

- ◆ *When working close to the radiator, always keep a distance from the fan - risk of injury!*
- ◆ *The fan can switch on automatically.*

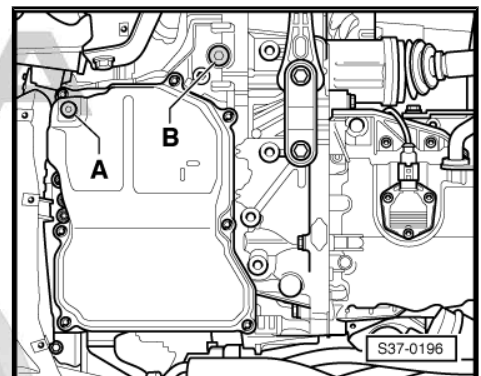
- Start engine and run in idle.



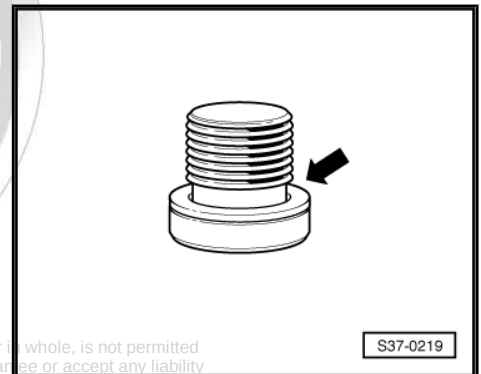
WARNING

Wear safety goggles.

- If an ATF temperature of 35°C is achieved, unscrew the ATF inspection plug -A-.



- Always replace gasket ring -arrows- for ATF inspection plug ⇒ Electronic Catalogue of Original Parts .



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First of all the ATF in the overflow tube -arrow 2- drains off.

If more ATF drips out of the ATF inspection opening (approx. 1 drop per second) via the overflow tube before the ATF has reached 40°C, the ATF level is correct.

- Fit ATF inspection plug -arrow 1- with a new gasket ring and tighten to tightening torque ➔ [page 64](#) . This completes the ATF inspection.

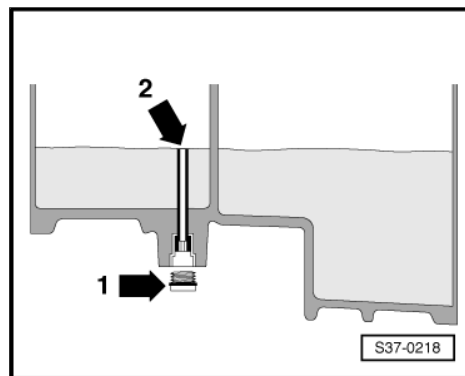


Note

At the latest at 45°C (in hot countries 50°C) the ATF inspection plug must be closed again.

If no ATF flows out at the ATF inspection opening up to 45°C, the ATF must be filled up ➔ [page 54](#) .

- End function “08 - read measured value block”.
- Tip “06 - End output”.
- Switch off ignition and disconnect the diagnostic plug connection.



4.1.2 Fill with ATF

Special tools and workshop equipment required

- ◆ ATF filling system -V.A.G 1924 -
- ◆ Adapter for oil filling -VAS 6262-
- ◆ Adapter for ATF oil filling -VAS 6262/2-
- ◆ Protective goggles



Note

- ◆ Pay attention to all the notes and test conditions ➔ [page 52](#) .
- ◆ The ATF filler tube is no longer available on gearboxes as of manufacturing date 06.06 -arrow-.

For gearbox with filler tube (vehicles up to 05.06)

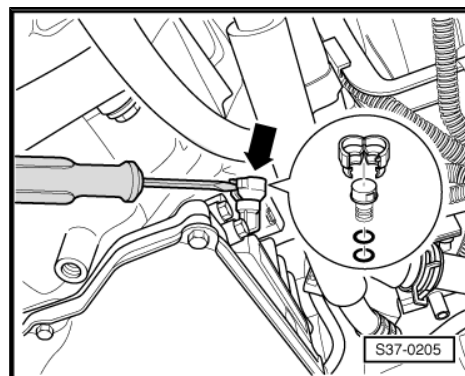
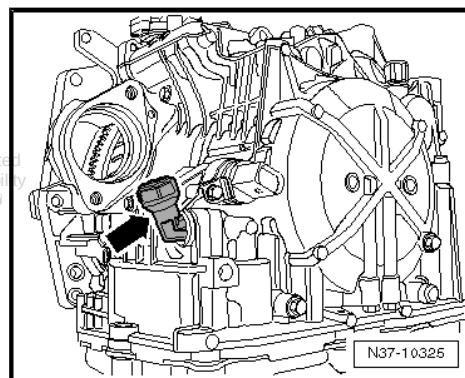
- Lever off cap -arrow- securing the screw plug with a screw-driver.



Note

The filler tube is located at the front of the gearbox, under the starter.

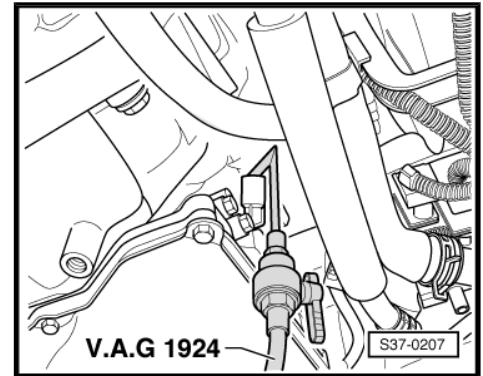
- Always replace the cap, because the cap catch is destroyed ➔ Electronic Catalogue of Original Parts .
- Pull off screw plug from the filler tube.



- Hook the hook of the ATF filling system -V.A.G 1924- into the opening of the filler tube.

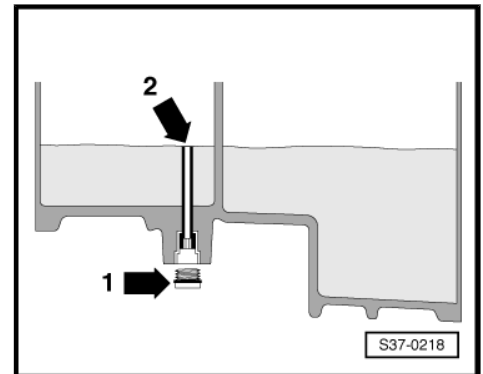
i Note

Too much or too little ATF filling impairs the gearbox function.

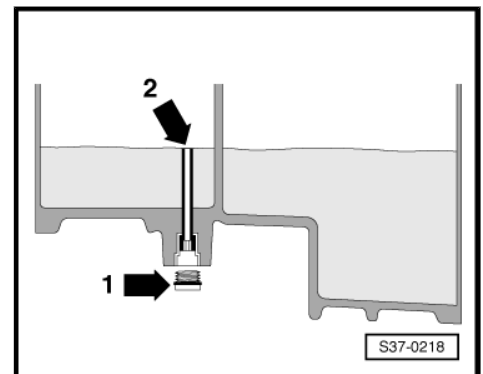


- Fill ATF with -V.A.G 1924- , until ATF between a temperature of 35°C and 45°C flows out of the inspection opening via the overflow tube -arrow 2-.
- Allow all excess ATF to drip out until it starts to drain off.

For gearbox without filler tube (vehicles up as of 06.06)



- Screw in the adapter for ATF oil filling -VAS 6262/2- in the location of the gearbox inspection plug -arrow 1- and connect adapter for oil filling -VAS 6262- .



- Fill with 1 liter of ATF.
- Remove adapter for oil filling -VAS 6262- from adapter for ATF oil filling -VAS 6262/2- .
- Observe whether the ATF flows out of the opening of the adapter for ATF oil filling -VAS 6262/2- .

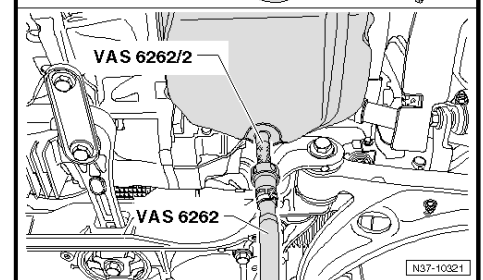
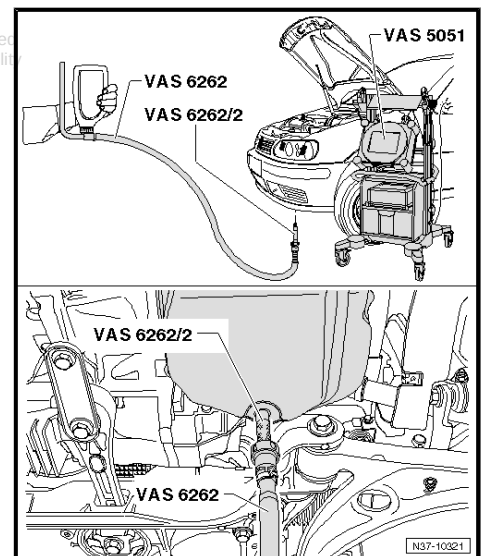
If ATF flows out of the opening of the adapter for ATF oil filling -VAS 6262/2- , the ATF level is correct.

- Allow all excess ATF to drip out until it starts to drain off.

If no ATF flows out of the opening of the adapter for ATF oil filling -VAS 6262/2- but only drips, the ATF level is not correct and the ATF must be filled up.

- Unscrew adapter for ATF oil filling -VAS 6262/2- .

Continued for all vehicles



- Fit ATF inspection plug -arrow 1- with a new gasket ring and tighten to tightening torque ➔ [page 64](#) . This completes the ATF inspection.



Note

At the latest at 45°C (in hot countries 50°C) the ATF inspection plug must be closed again, if necessary switch off the engine, allow the gearbox to cool down and repeat the check.

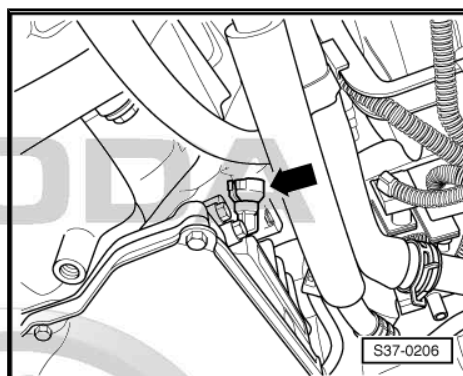
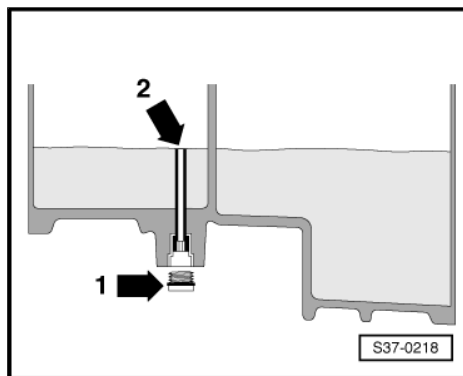
For gearbox with filler tube (vehicles up to 05.06)

- Insert the screw plug in the filler tube.
- Fit new safety cap -arrow- and lock in place.



WARNING

Always replace the cap. The cap secures the screw plug ➔ Electronic Catalogue of Original Parts .



Continued for all vehicles

- Install the noise insulation ➔ Body Work ➔ Rep. Gr. 50 .
- Switch off ignition and disconnect the diagnostic plug connection.

4.2 Change ATF or top up after repair

- Engine switched off.

Special tools and workshop equipment required

- ◆ ATF filling system -V.A.G 1924 -
- ◆ Adapter for oil filling -VAS 6262-
- ◆ Adapter for ATF oil filling -VAS 6262/2-
- ◆ Protective goggles



Note

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Pay attention to all the notes and test conditions ➔ [page 52](#) .

- Attach the reservoir of the ATF filling system as high as possible to the vehicle.
- Run the vehicle on a 4-column lift platform or over a workshop pit, so that it will be kept absolutely horizontal.
- Remove noise insulation ➔ Body Work ➔ Rep. Gr. 50 .



Note

- ◆ *Observe the disposal instructions.*
- ◆ *The engine must not be started without ATF and the vehicle must not be towed!*



WARNING

- ◆ *When working close to the radiator, always keep a distance from the fan - risk of injury!*
- ◆ *The fan can switch on automatically.*

4.2.1 Drain ATF

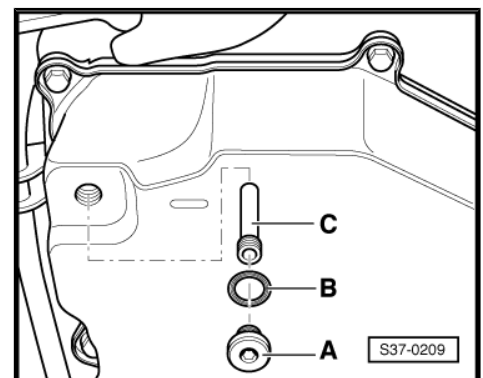
- Position the catch pan under the gearbox.



WARNING

Wear safety goggles.

- Unscrew the ATF inspection plug -A-.
- Unscrew the overflow tube -C- (5 mm Allen key) and drain the ATF.
- Install overflow tube -C- with 5mm Allen key and tighten to tightening torque ➔ [page 64](#) .



4.2.2 Fill with ATF

Special tools and workshop equipment required

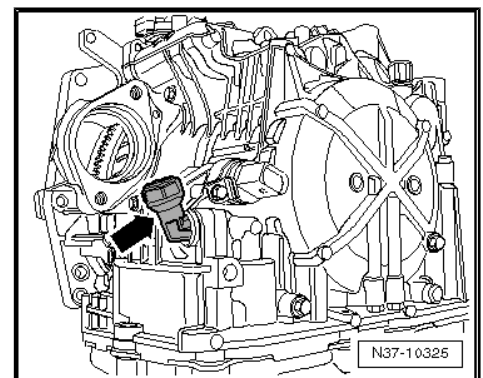
- ◆ ATF filling system -V.A.G 1924 -
- ◆ Adapter for oil filling -VAS 6262-
- ◆ Adapter for ATF oil filling -VAS 6262/2-
- ◆ Protective goggles



Note

- ◆ *Pay attention to all the notes and test conditions ➔ [page 52](#) .*
- ◆ *The ATF filler tube is no longer available on gearboxes as of manufacturing date 06.06 -arrow-.*

For gearbox with filler tube (vehicles up to 05.06)



- Lever off cap -arrow- securing the screw plug with a screw-driver.



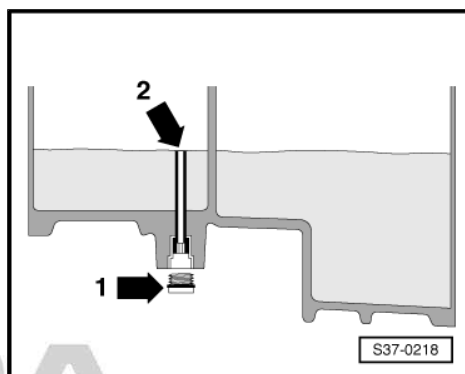
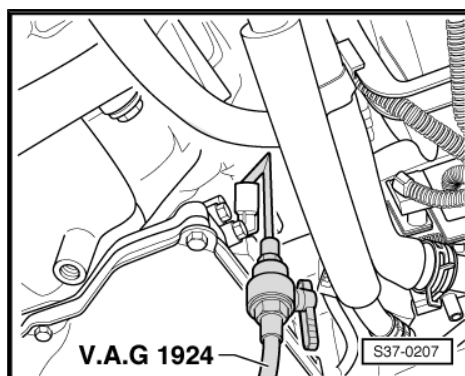
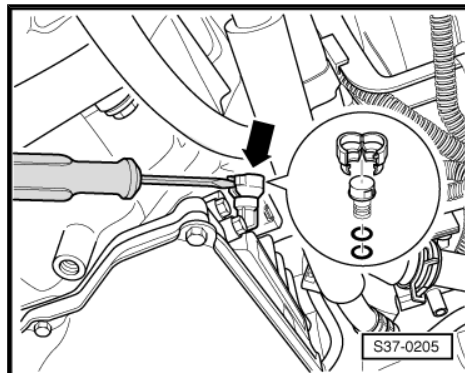
Note

The filler tube is located at the front of the gearbox, under the starter.

- Always replace the cap, because the cap catch is destroyed
⇒ Electronic Catalogue of Original Parts .
- Pull off screw plug from the filler tube.
- Hook the hook of the ATF filling system -V.A.G 1924- into the opening of the filler tube.
- Pour in 4 liters of ATF with ATF filling system -V.A.G 1924- .

For gearbox without filler tube (vehicles up as of 06.06)

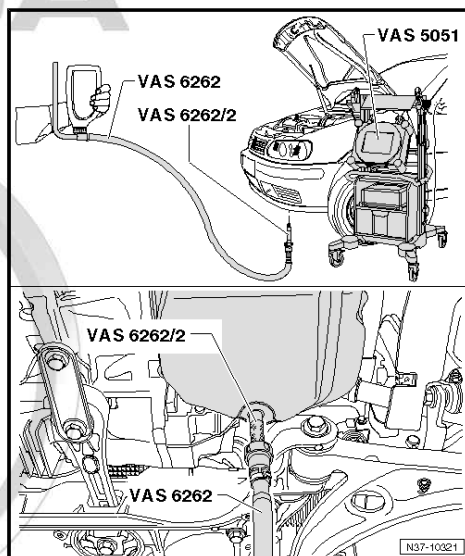
- Screw in the adapter for ATF oil filling -VAS 6262/2- in the location of the gearbox inspection plug -arrow 1- and connect adapter for oil filling -VAS 6262- .



- Pour in 4 liters of ATF.
- Remove adapter for oil filling -VAS 6262- from adapter for ATF oil filling -VAS 6262/2 - .
- Unscrew adapter for ATF oil filling -VAS 6262/2- .

Continued for all vehicles

- Tighten ATF inspection plug by hand.
- Start engine.
- With the brake pedal actuated shift through all selector lever positions "P, R, N, D, S" at idle speed, leaving the lever in each position for about 10 seconds.
- Shift selector lever into position "P".
- Switch off ignition.
- Subsequently inspect ATF level and if necessary top up
⇒ [page 52](#) .



5 Removing and installing ATF radiator

5.1 ATF radiator - Overview of components

1 - Gearbox housing

2 - O-ring

- ❑ replace ⇒ Electronic Catalogue of Original Parts

3 - ATF radiator

- ❑ removing and installing
⇒ [page 59](#)

4 - O-ring

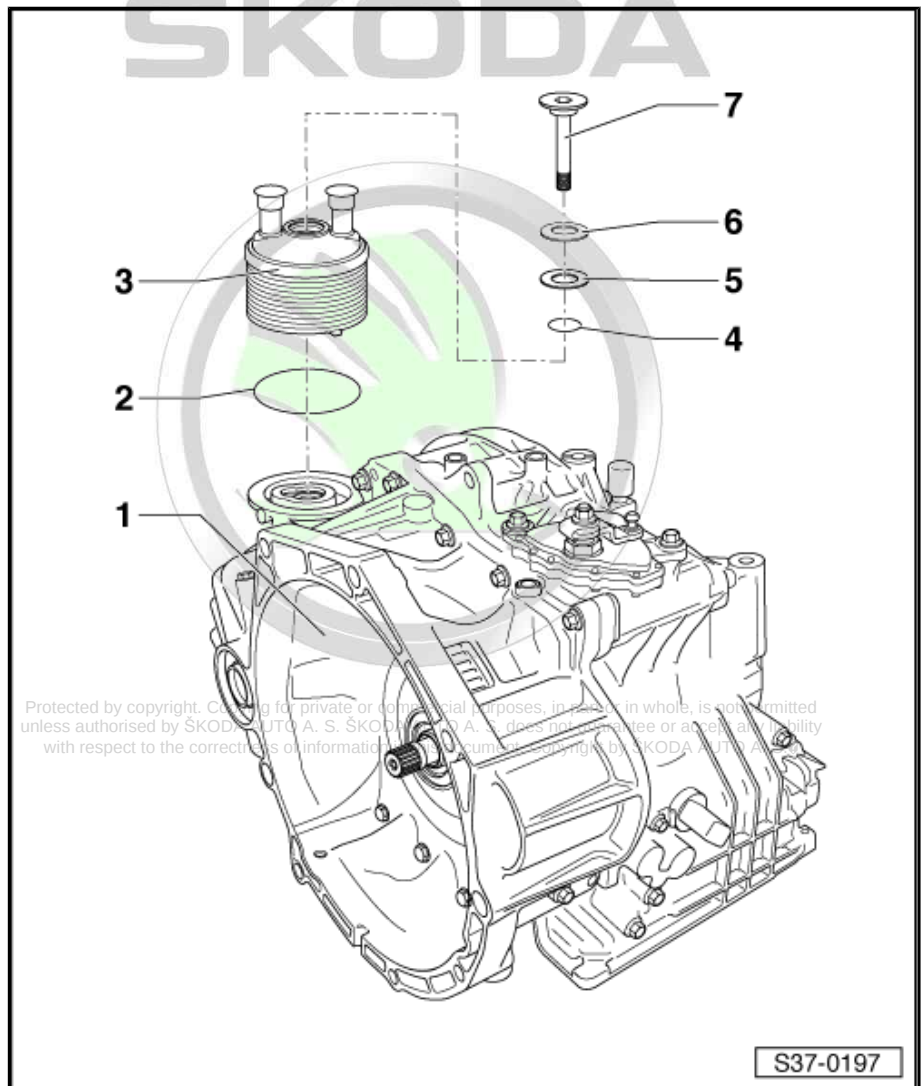
- ❑ replace ⇒ Electronic Catalogue of Original Parts

5 - Washer

6 - Disc spring

- ❑ Fitting location: Must rest on the washer Pos. 5; curved side of the disc spring to the outside must point upwards.

7 - 36 Nm



5.2 Removing and installing ATF radiator

Special tools and workshop equipment required

- ◆ Hose clamp -MP7-602 (3094)-

Remove ATF radiator

- Remove engine cover.
- Remove air filter ⇒ Engine ⇒ Rep. Gr. 24 .



WARNING

Observe measures when disconnecting and connecting the battery ⇒ Electrical System ⇒ Rep. Gr. 27 .

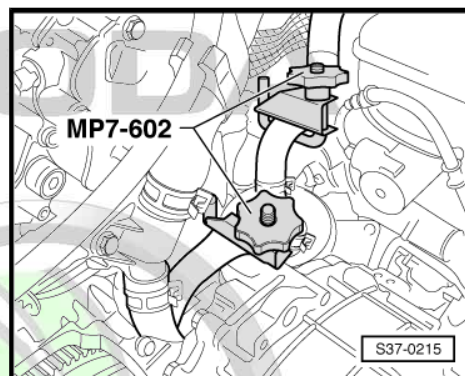
- Remove battery and battery tray ⇒ Electrical System ⇒ Rep. Gr. 27 .
- Mark hoses of ATF radiator to ATF radiator, in order to prevent interchanging when installing.



Note

Depending on the as-built configuration a small plastic tube is located in the feed of the ATF radiator, which must be re-installed during installation.

- Clamp off the ATF-radiator hoses with hose clamps -MP7-602 (3094)- and remove from ATF-radiator.

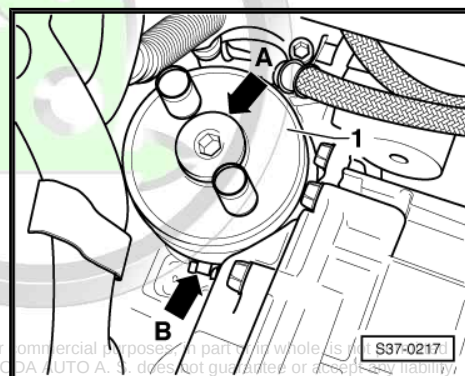


- Remove the ATF radiator -1- from the gearbox -arrow A-.

Install ATF radiator

Installation is carried out in the reverse order. Pay attention to the following:

- Replace O-rings of ATF radiator ⇒ Electronic Catalogue of Original Parts .
- The disc spring ⇒ [Item 6 \(page 59\)](#) must be installed in such a way that it rests on the washer ⇒ [Item 5 \(page 59\)](#) and the curved side of the disc spring points upwards.
- When installing the ATF radiator -1- position the peg -arrow B- in the recess in the gearbox housing.



Component	Nm
ATF radiator to gearbox	36

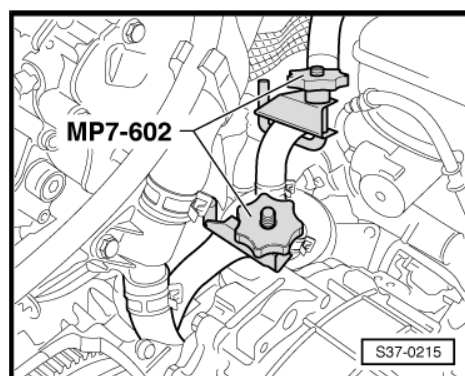
- Fit hoses of ATF radiator according to the markings onto the ATF radiator.



Note

Depending on the as-built configuration a small plastic tube is located in the feed of the ATF radiator, which must be re-installed during installation.

- Check coolant level in the cooling system ⇒ Engine ⇒ Rep. Gr. 19 .
- Subsequently inspect ATF level and if necessary top up ⇒ [page 52](#) .



38 – Wheels, Control

1 Removing and installing oil pan, oil filter, slide valve body and internal wiring looms



WARNING

Do not run the engine or tow the vehicle when the oil pan has been removed or without filling with ATF.



Note

- ◆ Always replace soiled or faulty slide valve bodies.
- ◆ General repair information ➔ [page 5](#).
- ◆ Coat O-rings and gasket rings with ATF. Other types of lubricant will cause the gearbox hydraulic control system to malfunction.
- ◆ The slide valve body and the wiring looms with 8-pin and 14-pin plug can also be removed with the installed gearbox.

1.1 Oil pan, oil filter, slide valve body, internal wiring looms - Overview of components

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1 - ATF inspection plug M10 - 27 Nm

- ☐ Replace gasket ring Pos. 2
- ☐ Inspecting ATF level, if necessary topping up ➔ [page 52](#)

2 - Gasket ring

- ☐ replace ➔ Electronic Catalogue of Original Parts

3 - Overflow tube - 2 Nm

- ☐ screw with 5 mm Allen key into the oil pan

4 - Oil pan

- ☐ removing and installing ➔ [page 65](#)

5 - 7 Nm

- ☐ 8 pieces for attaching the oil pan with the oil pan gasket to the gearbox housing

6 - Gasket

7 - Magnet

- ☐ 2 magnets in the beads of the oil pan
- ☐ clean before installation

8 - 11 Nm

- ☐ 3 pieces for attaching ATF strainer to slide valve body

9 - ATF strainer

- ☐ removing and installing ➔ [page 67](#)

10 - M6 screw

- ☐ 12 screws with different lengths for attaching the slide valve body to the gearbox
- ☐ replace ➔ Electronic Catalogue of Original Parts
- ☐ Pay attention to assignment ➔ [page 67](#)

11 - Slide valve body

- ☐ removing and installing ➔ [page 67](#)
- ☐ Marking of solenoid valves ➔ [page 64](#)

12 - 6 Nm

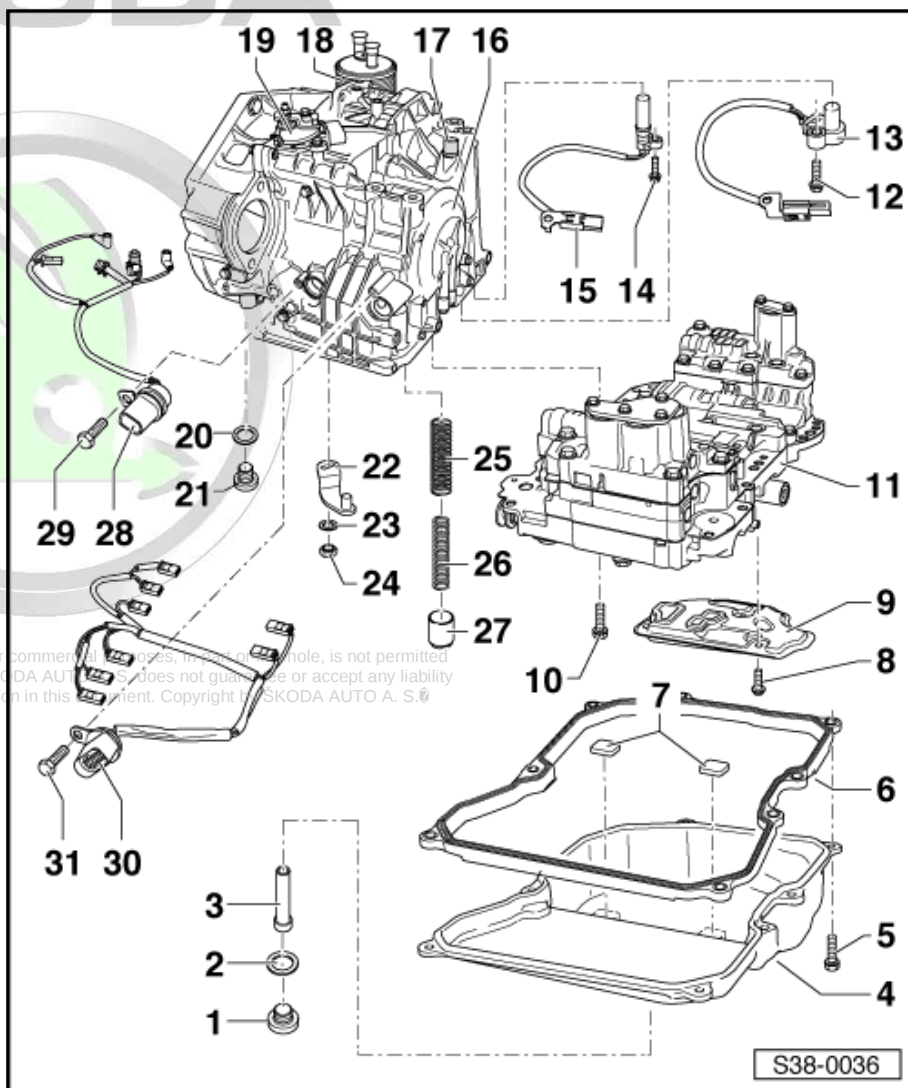
13 - Gearbox input r.p.m. sender -G182-

- ☐ with cable and 2-pin plug connection
- ☐ removing and installing ➔ [page 81](#)

14 - 7 Nm

15 - Gearbox output r.p.m. sender -G195-

- ☐ with cable and 2-pin plug connection
- ☐ removing and installing ➔ [page 82](#)





16 - Gearbox housing

17 - ATF bleeder

18 - ATF radiator

- ☐ removing and installing ⇒ [page 59](#)

19 - Multi-function switch -F125-

- ☐ is checked by self-diagnosis
- ☐ removing and installing ⇒ [page 84](#)
- ☐ adjust ⇒ [page 86](#)

20 - Gasket ring

- ☐ replace ⇒ Electronic Catalogue of Original Parts

21 - ATF drain plug M18 - 40 Nm

22 - Lever

- ☐ for inside selector lever shaft at slide valve body
- ☐ removing and installing ⇒ [page 67](#)

23 - Washer

24 - 10 Nm

- ☐ check fitting position ⇒ [page 67](#)

25 - Large spring

26 - Small spring

27 - Shock absorber piston

28 - Wiring loom with 8-pin plug and integrated gearbox oil temperature sender -G93-

- ☐ with O-ring to the plug connection
- ☐ Replace O-ring ⇒ Electronic Catalogue of Original Parts
- ☐ connected components ⇒ [page 65](#)
- ☐ removing and installing ⇒ [page 79](#)

29 - 6 Nm

30 - Wiring loom with 14-pin plug

- ☐ with O-ring to the plug connection
- ☐ Replace O-ring ⇒ Electronic Catalogue of Original Parts
- ☐ connected components ⇒ [page 64](#)
- ☐ removing and installing ⇒ [page 77](#)

31 - 6 Nm

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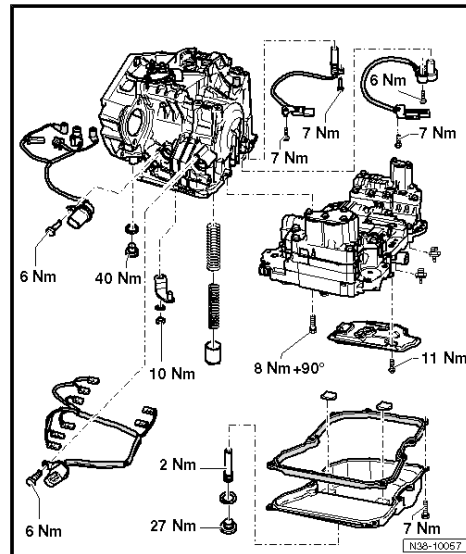


1.1.1 Tightening torques



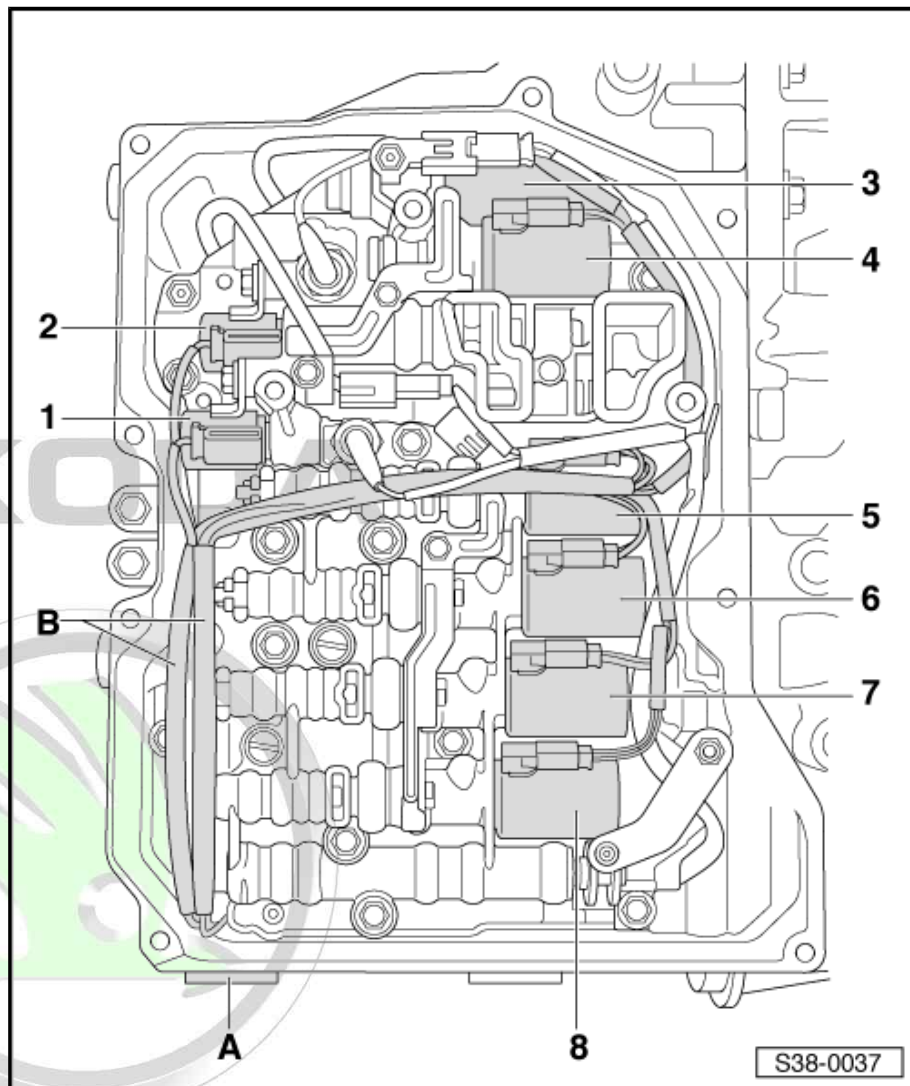
Note

90° correspond to a quarter turn.



1.1.2 Components at wiring loom of 14-pin plug

- 1 - Solenoid valve 1 -N88-
- 2 - Solenoid valve 2 -N89-
- 3 - Solenoid valve 4 -N91-
- 4 - Solenoid valve 6 -N93-
- 5 - Solenoid valve 5 -N92-
- 6 - Solenoid valve 9 -N282-
- 7 - Solenoid valve 10 -N283-
- 8 - Solenoid valve 3 -N90-
- A - 14-pin plug
- B - Wiring loom for 14-pin plug



1.1.3 Components at wiring loom of 8-pin plug

1 - Sender 1 for hydraulic pressure -G193-

- ☐ no longer available as of 12.04

2 - Plug connection for gearbox input r.p.m sender -G182-

3 - Cables for gearbox input r.p.m sender -G182-

4 - Sender 2 for hydraulic pressure -G194-

- ☐ no longer available as of 12.04

5 - Cables at gearbox input r.p.m sender - G195-

6 - Plug connection for gearbox output r.p.m sender - G195-

7 - Bracket for the gearbox oil temperature sender -G93-

8 - Gearbox oil temperature sender -G93-

- ☐ is integrated in the wiring loom
⇒ [Item B \(page 65\)](#)

A - 8-pin plug

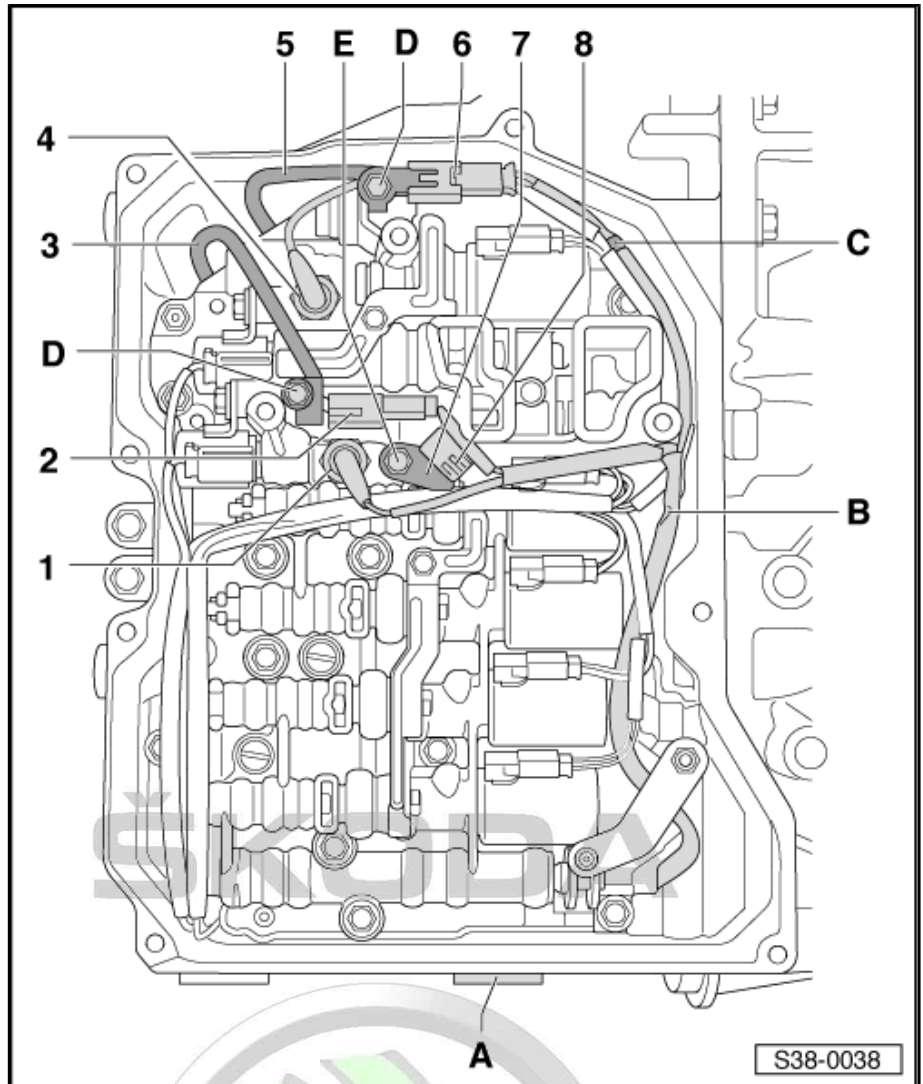
B - Wiring loom for 8-pin plug

- ☐ removing and installing wiring loom for 8-pin plug ⇒ [page 79](#)

C - Bracket for wiring loom

D - 7 Nm

E - 7 Nm



1.2 Removing and installing oil pan

Special tools and workshop equipment required

- ◆ Protective goggles



Note

General repair information ⇒ [page 5](#).

Removing the oil pan

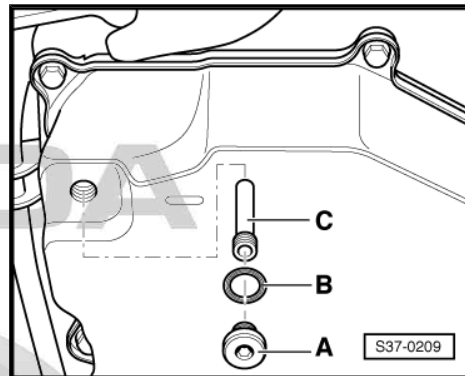
- Remove noise insulation ⇒ [Body Work](#) ⇒ [Rep. Gr. 50](#)
- Position the catch pan under the gearbox.



WARNING

Wear safety goggles.

- Unscrew the ATF inspection plug -A-.
- Unscrew the overflow tube -C- (5 mm Allen key) and drain the ATF.



- Loosen the 8 screws of the oil pan -arrows- crosswise.



WARNING

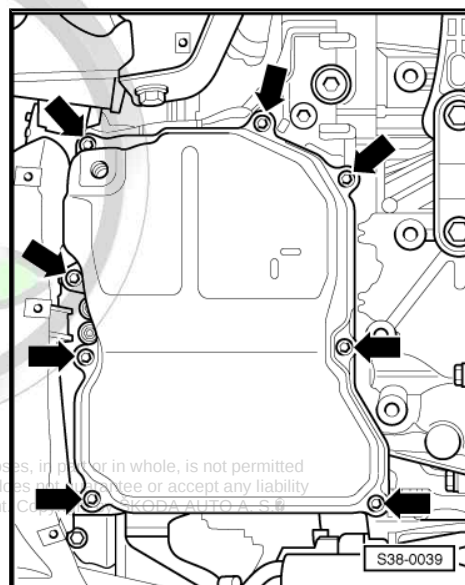
There is still ATF in the oil pan, because not all of it could be drained via the opening -A-.

- Remove oil pan together with the oil pan gasket.

Installing the oil pan

Installation is performed in the reverse order, pay attention to the following points:

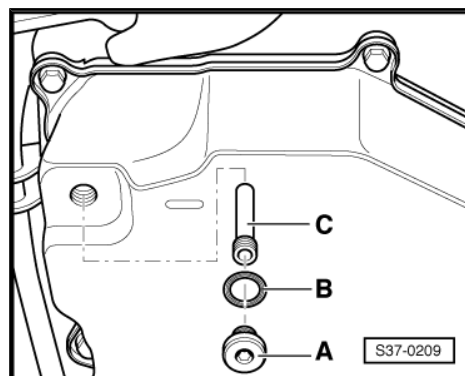
- Clean the two magnets ➔ [Item 7 \(page 62\)](#) in the oil pan beads. Take care that the full surface of the magnets rests against the oil pan.



Note

The magnets must be absolutely fitted on the provided points in the oil pan.

- Clean gaskets and sealing surfaces and eliminate residues of oil.
- Pay attention to correct fitting of oil pan gasket.
- When positioning the oil pan no cables must be trapped.
- Screw in the 8 screws of the oil pan -arrows- crosswise.
- Replace gasket ring of ATF drain plug ➔ Electronic Catalogue of Original Parts .
- Install overflow tube -C- (with 5 mm Allen key).
- Top up with ATF and inspect ATF level ➔ [page 52](#) .
- Gasket ring -B- of ATF inspection plug must be replaced after the ATF inspection ➔ Electronic Catalogue of Original Parts .



Tightening torque

Component	Nm
Overflow in oil pan	⇒ page 64
ATF inspection plug to oil pan	⇒ page 64
Oil pan to gearbox housing ¹⁾	⇒ page 64

¹⁾ Tighten crosswise in stages.

1.3 Removing and installing the oil filter

Note

General repair information ⇒ [page 5](#).

Removing oil filter

- Removing the oil pan ⇒ [page 65](#).
- Unscrew screws for oil filter -arrows-.
- Take the oil filter -A- out of the slide valve body.

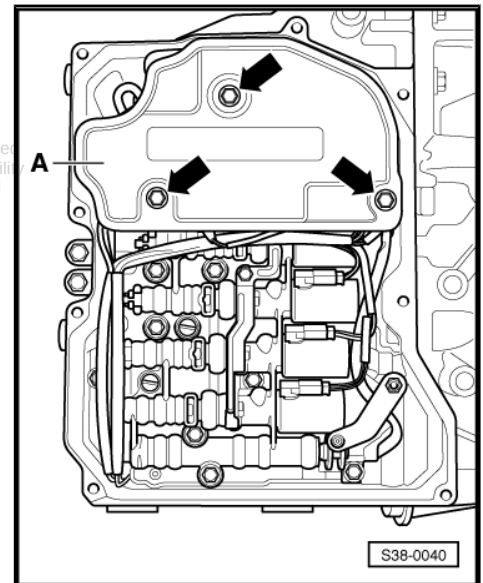
Install oil filter

- Thinly coat gaskets on the intake collar of the oil filter (reverse side) with ATF.

Note

If the gaskets on the reverse side of the oil filter for the slide valve body are defective or no longer properly attached to the oil filter, the oil filter must be replaced.

- Position oil filter on the slide valve body and tighten screws -arrows- to tightening torque ⇒ [page 64](#).
- Install oil pan ⇒ [page 66](#).
- Top up with ATF and inspect ATF level ⇒ [page 52](#).



1.4 Removing and installing the slide valve body

Special tools and workshop equipment required

- ◆ Protective goggles

Note

- ◆ Always replace soiled or faulty slide valve bodies.
- ◆ General repair information ⇒ [page 5](#).

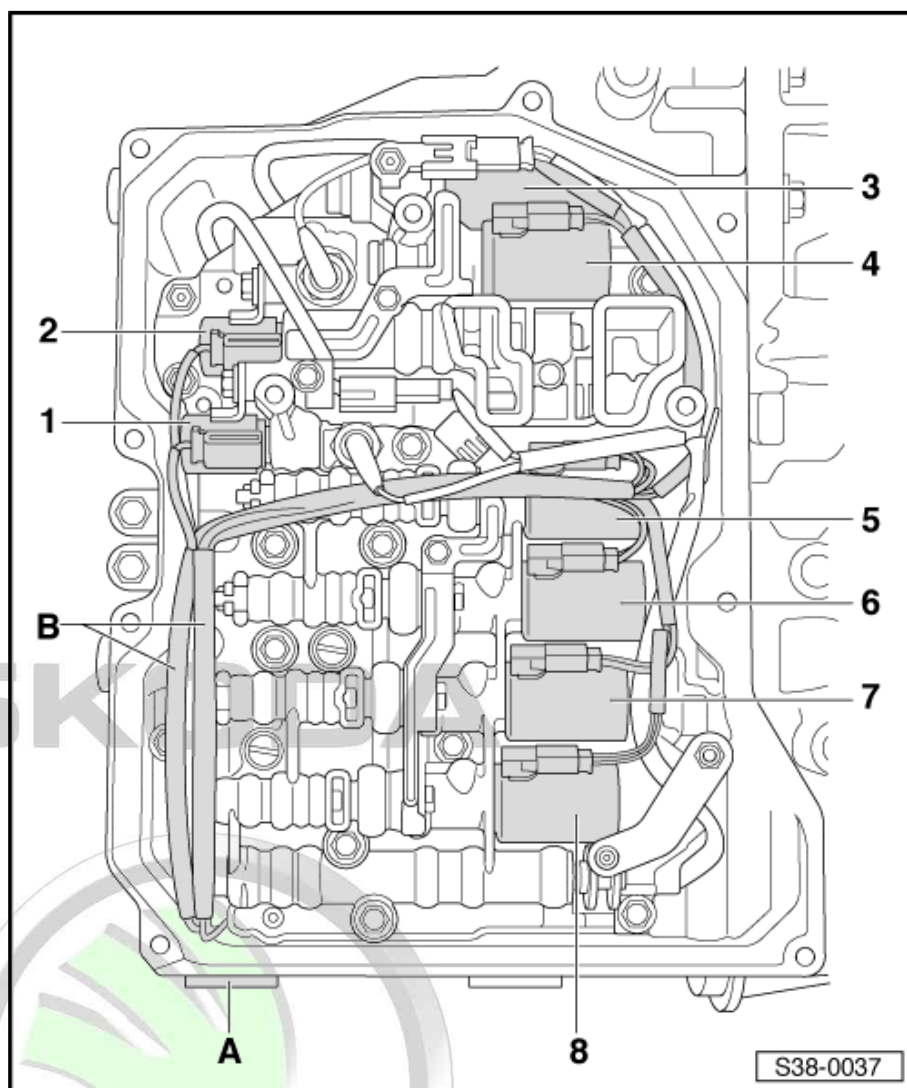
Remove the slide valve body



WARNING

Observe measures when disconnecting and connecting the battery ⇒ Electrical System ⇒ Rep. Gr. 27.

- Disconnect the battery-earth strap with the ignition off ⇒ Electrical System ⇒ Rep. Gr. 27.
- Removing the oil pan ⇒ [page 65](#).
- Removing oil filter ⇒ [page 67](#).



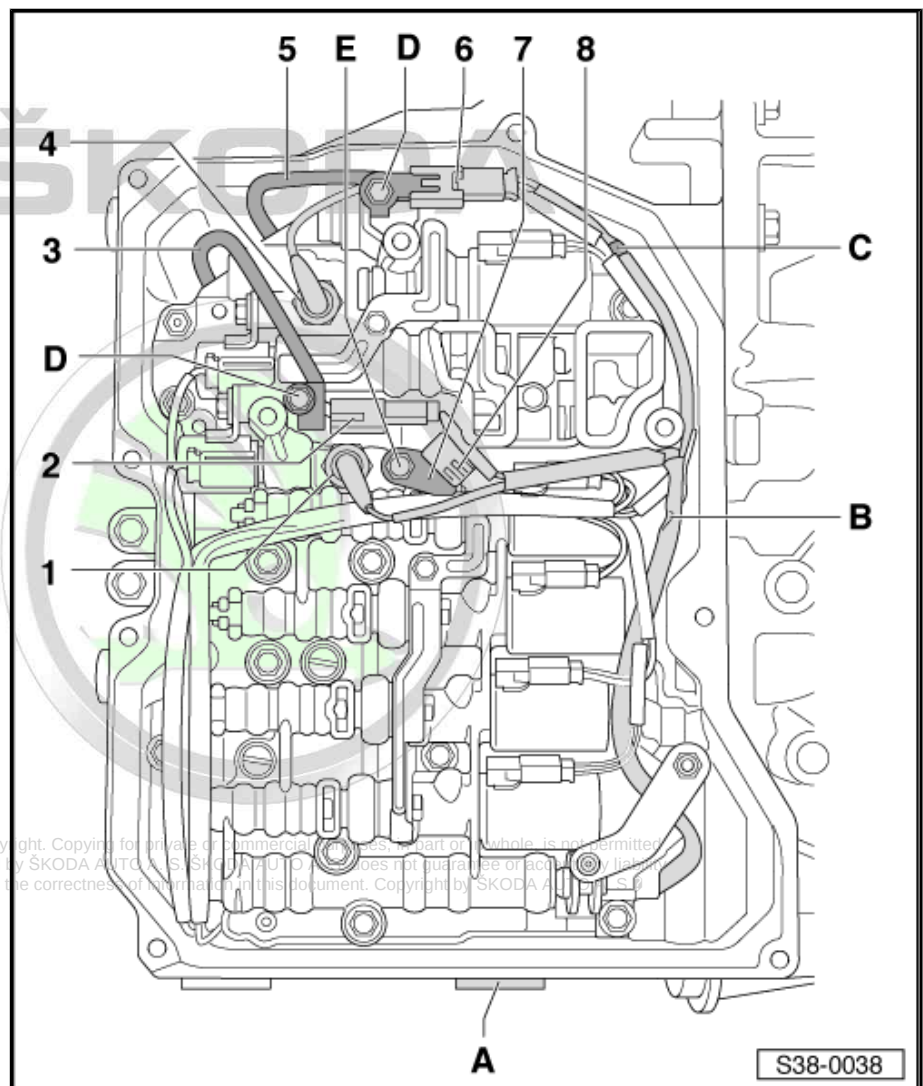
- Make a sketch by hand in the same way as for the illustration with all the solenoid valves and their plug connections and mark all the plugs with the corresponding colour. Also mark the related cables with the corresponding colours.

i Note

- ◆ *This sketch is absolutely necessary, so that the plugs on the solenoid valves are not inadvertently interchanged when re-installing the slide valve body.*
- ◆ *Under certain circumstances an interchange of the plugs could lead to a destruction of the gearbox.*
- With a small screwdriver, lever up the catches on the connectors at the solenoid valves -Pos. 1...8- and pull out the connectors.

i Note

In case of damage of the plug connections, the wiring loom with 14-pin plug or the slide valve body with the solenoid valves must be replaced.



- Unscrew the 3 screws -D- and -E-.
- Carefully disconnect the following plug connections:



Note

Plug connection -1- and plug connection -4- are not available as of 12.04.

- Plug connection -1- on the hydraulic pressure sender -G193- .
- Plug connection -2- for the gearbox input r.p.m. sender -G182- .
- Plug connection -4- on the hydraulic pressure sender 2 -G194- .
- Plug connection -6- for the gearbox output r.p.m. sender -G195- .
- Carefully pull the gearbox oil temperature sender -G93- -8- together with the bracket -7- out of the slide valve body.



Note

When re-installing, pay attention to the attachment of the bracket on the gearbox oil temperature sender -G93- .

- Unhook wiring loom at bracket -C-.



Note

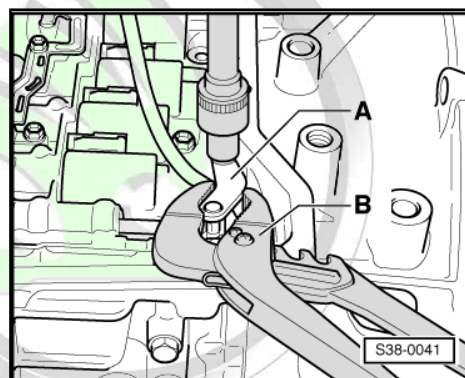
In case of damage of the plug connections (depending on the defective plugs), the wiring loom with 8-pin plug or the gearbox input r.p.m. sender -G182- or the gearbox output r.p.m. sender -G195- must be replaced.

- Remove gearshift lever -A- on the gearshift shaft.



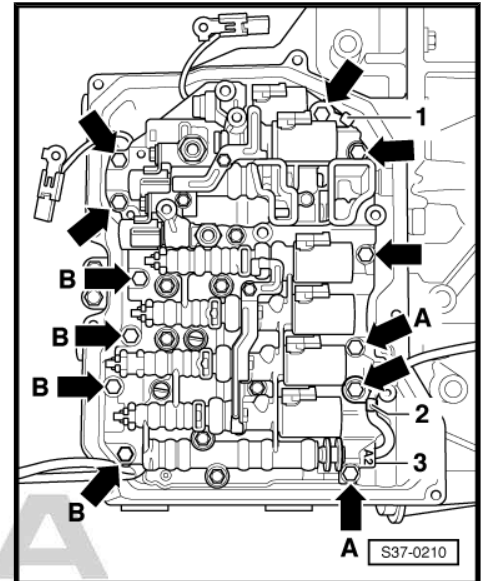
Note

- ◆ *Carefully hold the gearshift lever -A- with combination pliers -B-, so that the torque is not transmitted onto the multi-function switch -F125- .*
- ◆ *Pay attention to the slide valve on the slide valve body, in which the gearshift lever is engaged, so that it is not damaged.*



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- Loosen the fixing screws -arrows- of the slide valve body crosswise and carefully remove the slide valve body.
 - Remove the bracket -1- and -2-.
- 3 - Designation of slide valve body, here e.g. °B. "A2"



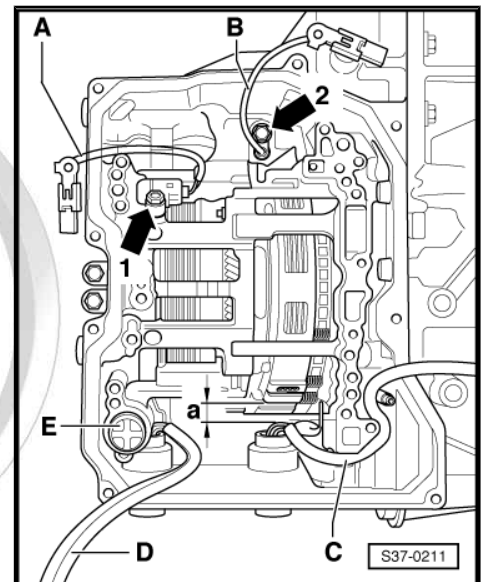
i Note

- ◆ *Observe when installing that the screws have different lengths and must be replaced.*
- ◆ *Only the marked fixing screws -arrows- must be released.*
- ◆ *When releasing other screws the function of the slide valve body can be impaired or the slide valve body splits.*
- ◆ *When removing the slide valve body, the shock absorber piston -E- must be secured against dropping out or removed together with both springs.*

Install slide valve body

i Note

- ◆ *The routing of the cables must be accurately observed, so that when positioning the slide valve body they are not trapped or damaged.*
- ◆ *Damaged or pinched cables must always be replaced.*

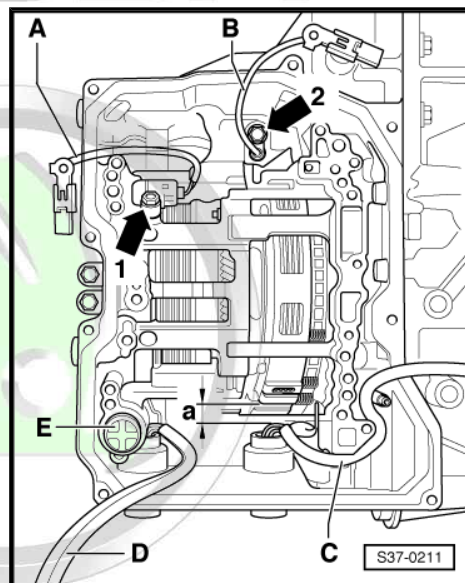


- Route the wiring loom -C- (with 8-pin plug) according to the illustration in the specified recess in the slide valve body.
- The wiring loom -C- must not rest against the planetary gearbox. The clearance -a- must be maintained, so that the wiring loom is not chafed in the driving mode.
- Route the wiring looms -A-, -B- and -D- according to the illustration over the gearbox border.
- Make sure that the shock absorber piston -E- is installed in the illustrated location in the gearbox.



Note

- ♦ *If the shock absorber -E- is removed, it must be cleaned together with both springs and installed in the same way
⇒ [Item 27 \(page 63\)](#) , ⇒ [Item 26 \(page 63\)](#) ,
⇒ [Item 25 \(page 63\)](#) .*
- ♦ *To do so insert both springs into each other, coat the outer wall of the shock absorber piston and the opening in the gearbox with ATF and insert all parts in the gearbox.*
- ♦ *Press the shock absorber piston in the gearbox (secure against falling out) until the slide valve body is positioned.*

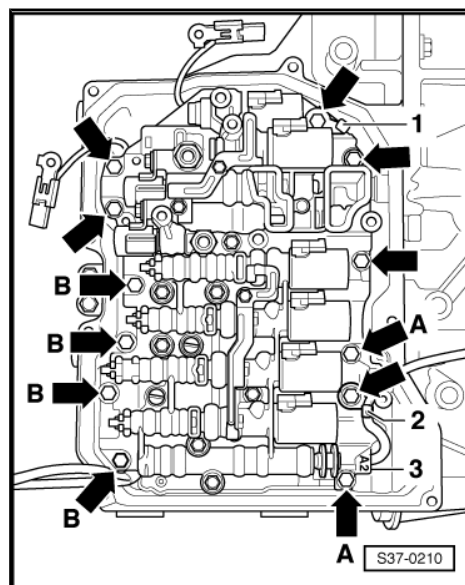


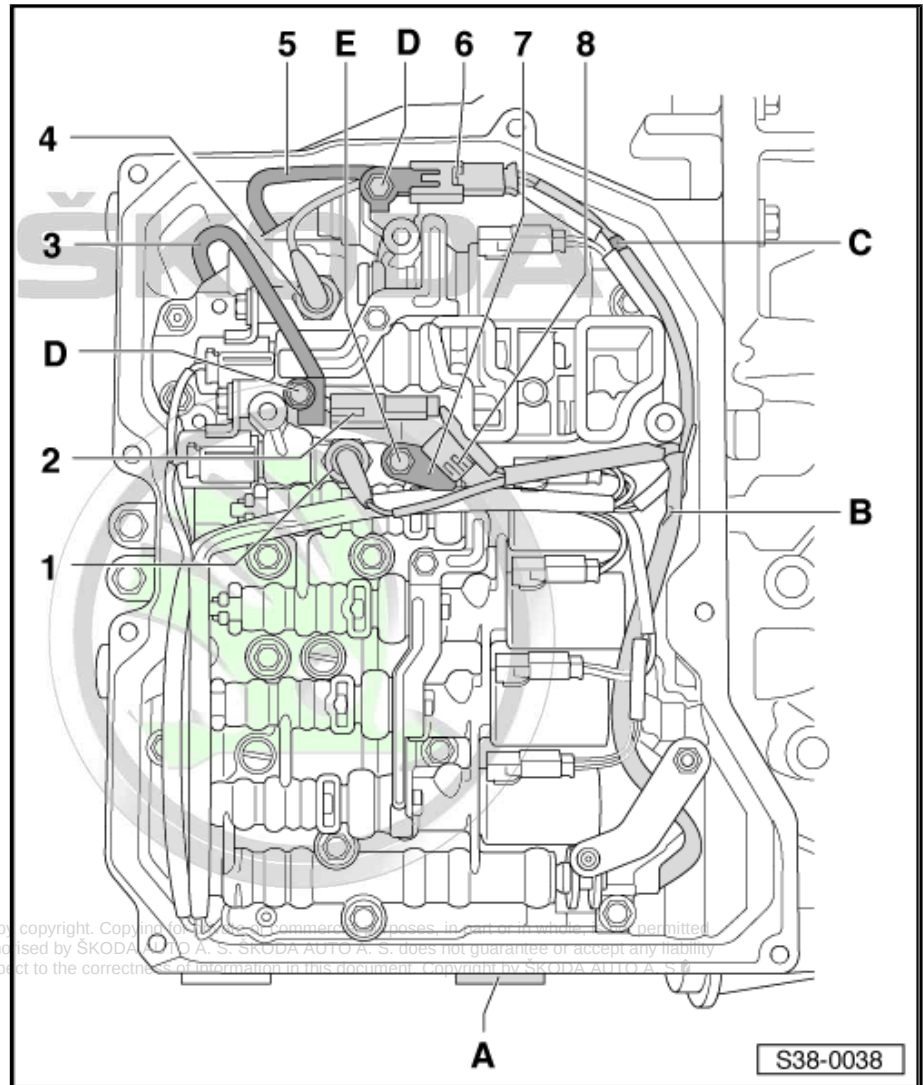
- Position the slide valve body without force.
- Wiring looms must not be trapped by the slide valve body, pinched cables must always be replaced ⇒ Electronic Catalogue of Original Parts .
- All fixing screws for slide valve body must be replaced ⇒ Electronic Catalogue of Original Parts .
- Screw on by hand the bracket for the wiring loom -1- and -2- with the corresponding screw.
- Tighten remaining screws for slide valve body -arrows- by hand.
- Pay attention to the screw lengths:

Arrow - screw M6 × 21

Arrow A - screw M6 × 16

Arrow B - screw M6 × 28

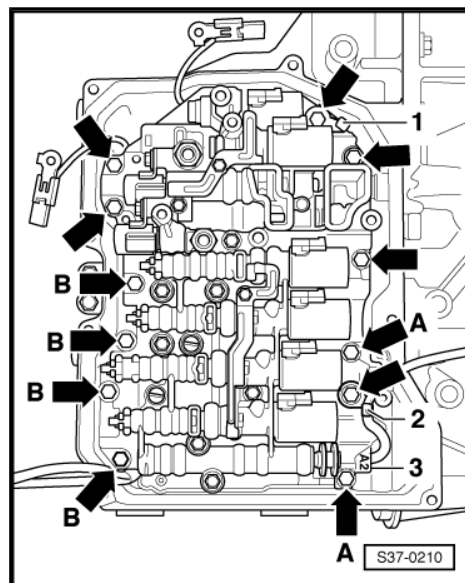




i Note

- ◆ If the cable -3- (for gearbox input rpm sender -G182-) is too short, in order to screw the plug connection -2- on the provided point onto the slide valve body, it was wrongly routed or trapped by the slide valve body. Then the slide valve body must be removed once again and the cable must be routed correctly.
- ◆ Pinched cables must be replaced ⇒ *Electronic Catalogue of Original Parts*.
- Make sure that no cables are in fact trapped.

- After this, tighten the screws -arrows- for the slide valve body from the outside to the inside to a final torque ➤ [page 77](#) .



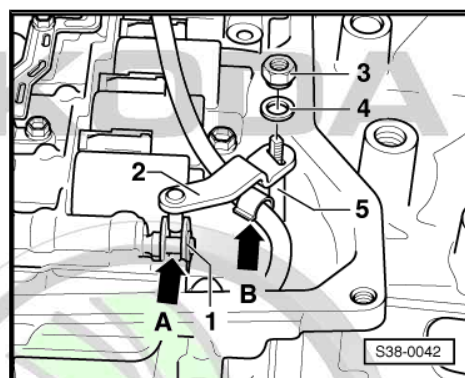
- Hang the wiring loom in the bracket -B-.
- Position the gearshift lever -2- on the gearshift shaft -5-.



Note

Make sure that the pin of the gearshift lever -2- engages in the slide valve -1- -arrow A-. If necessary the slide valve must be moved accordingly out or into the slide valve body.

- Fit washer -4- and nut -3- onto the gearshift shaft.



Note

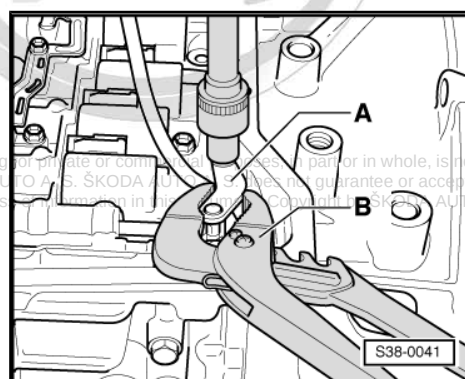
- ♦ *The centering collar of the nut must point to the washer and when screwing on catch in the washer.*
- ♦ *The wiring loom must be routed below the gearshift lever.*

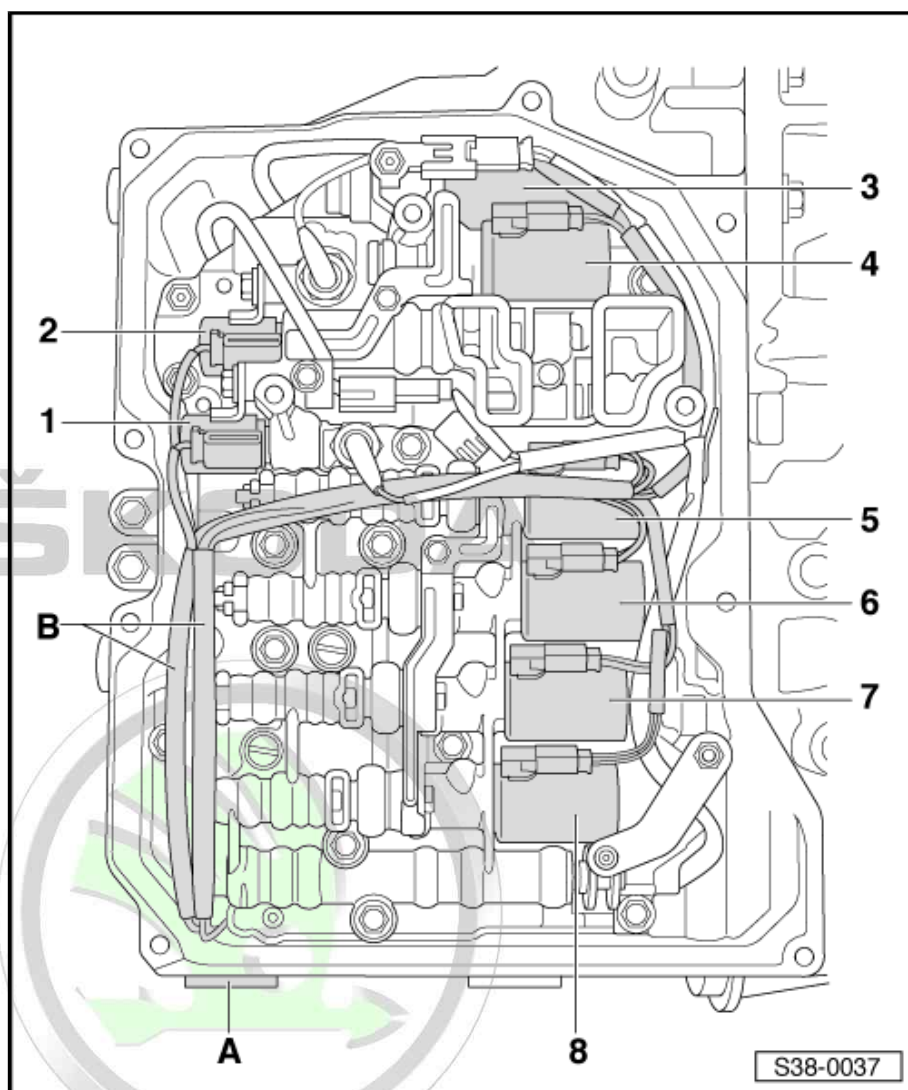
- Tighten nut to tightening torque ➤ [page 64](#) .



Note

- ♦ *Carefully hold the gearshift lever -A- with combination pliers -B-, so that the torque is not transmitted onto the multi-function switch -F125- .*
- ♦ *Pay attention to the slide valve on the slide valve body, in which the gearshift lever is engaged, so that it is not damaged.*



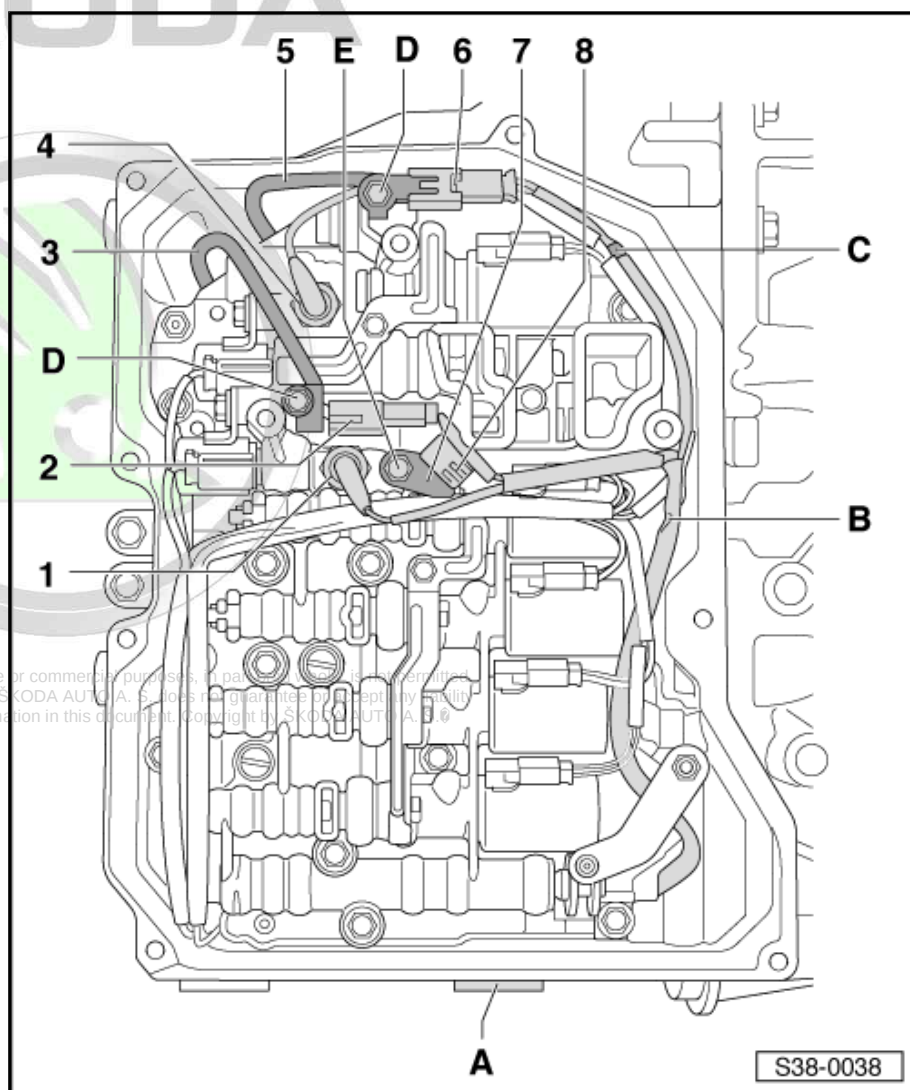


- Connect plug connections -1 ... 8- according to the sketches made by hand on the solenoid valves. Absolutely pay attention to the colours of the plug connections and cables.
- Route the wiring loom -B- in the same way as the illustration.



Note

Under certain circumstances an interchange of the plugs could lead to a destruction of the gearbox.



- Mount the plug connection -2-.
- Mount the plug connection -6-.

**Note**

The counterparts of the plugs must have the same colour as the respective plugs.

- Position bracket -7- on the gearbox oil temperature sender - G93- -8-.
- Insert gearbox oil temperature sender -G93- together with the bracket in the slide valve body and tighten the screw (M6) -E-.
- Fit plug connections -1- and -5- onto the pressure sender.
- Secure plug connections -2- and -6- with screws M5 -D- at slide valve body.



Note

- ◆ *If the cable -3- (for gearbox input rpm sender -G182-) is too short, in order to screw the plug connection -2- on the provided point onto the slide valve body, it was wrongly routed or trapped by the slide valve body. Then the slide valve body must be removed once again and the cable must be routed correctly.*
- ◆ *Pinched cables must be replaced.*
- Hang the wiring loom -B- in the bracket -C- and route in the same way as the illustration.
- Install oil filter ⇒ [page 67](#) .
- Install oil pan ⇒ [page 66](#) .
- Pay attention to the measures after connecting the battery ⇒ Electrical System ⇒ Rep. Gr. 27 .
- Top up with ATF and inspect ATF level ⇒ [page 52](#) .

Tightening torques

Component	Nm
Slide valve body to gearbox housing (from outside to the inside) M6 screws, pay attention to different screw lengths ¹⁾	⇒ page 64
Gearshift lever on gearshift shaft (nut)	⇒ page 64
Gearbox oil temperature sender -G93- (M6 screw with bracket to slide valve body)	⇒ page 64
2 x plug for the speed sender (M5 screw with bracket to slide valve body)	⇒ page 64

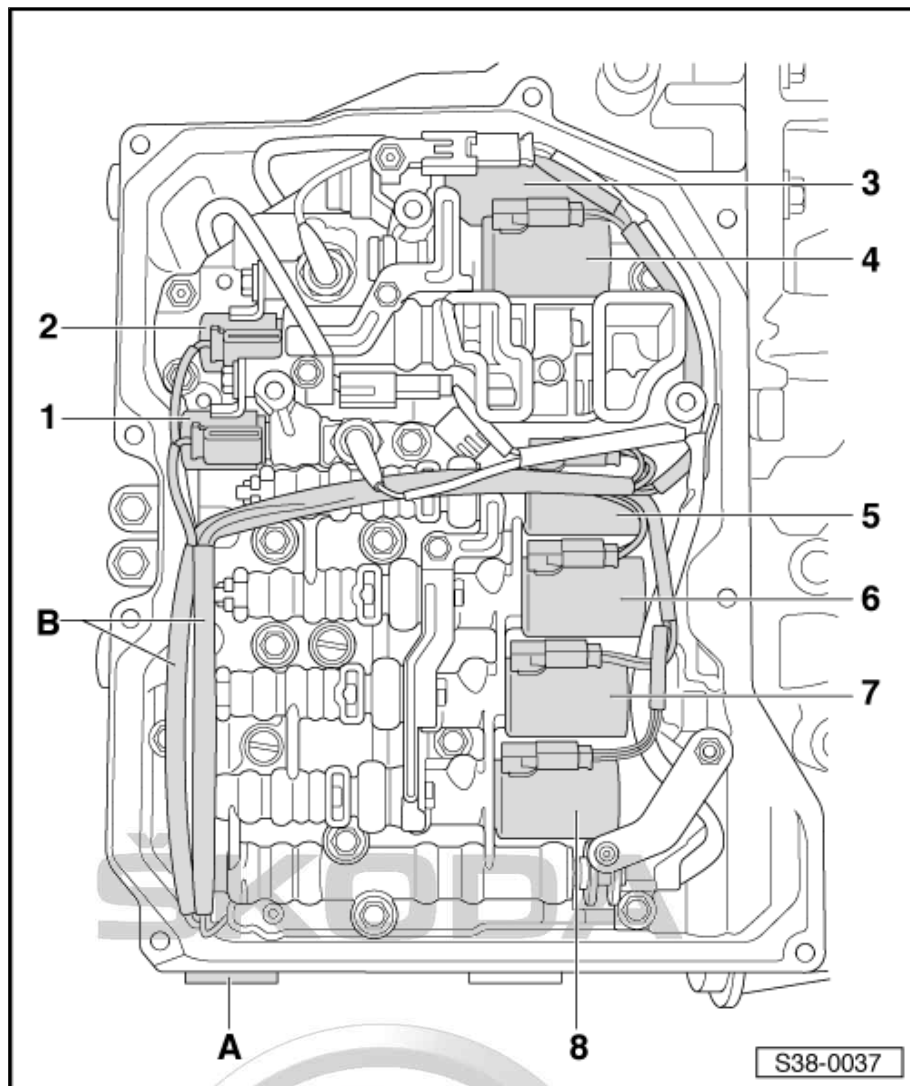
1) Replace bolts.

1.5 removing and installing wiring loom with 14-pin plug

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**A - 14-pin plug****B - Wiring loom for 14-pin plug**

- Designation of solenoid valves and wiring loom routing ➔ [page 64](#)

**Note**

General repair information ➔ [page 5](#).

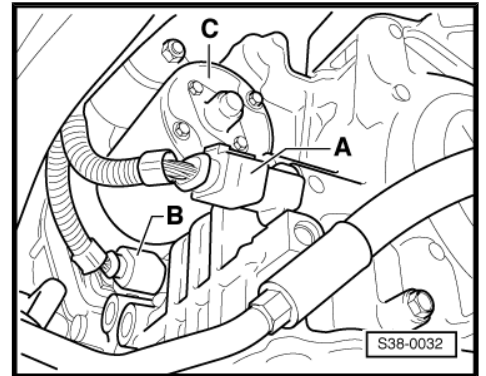
Removing wiring loom with 14-pin plug

- Disconnect the earth strap from the battery with the ignition off.
- Removing the oil pan ➔ [page 65](#).
- Removing oil filter ➔ [page 67](#).
- Remove the slide valve body ➔ [page 67](#).

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With gearbox installed:

- Unplug the 14 pin plug connection -A- from gearbox plug.



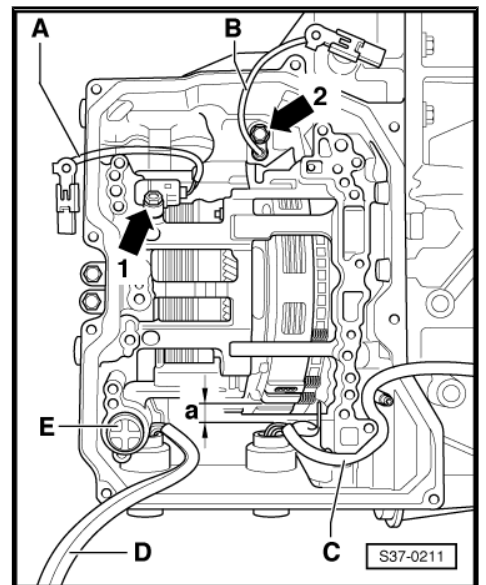
All:

- Unscrew fixing screw of 14-pin plug outside the gearbox housing.
- Pull the plug out of the gearbox housing and carefully guide through the wiring loom -D-.

Install wiring loom with 14-pin plug

Installation is performed in the reverse order, pay attention to the following points:

- Replace O-ring at plug ⇒ Electronic Catalogue of Original Parts .
- Moisten the O-ring with ATF.
- Press plug with positioned O-ring up to the stop into the gearbox.



Tightening torque

Component	Nm
Locking screw for 14-pin plug	⇒ page 64

1.6 Removing and installing wiring loom with 8-pin plug and integrated gearbox oil temperature sender -G93-



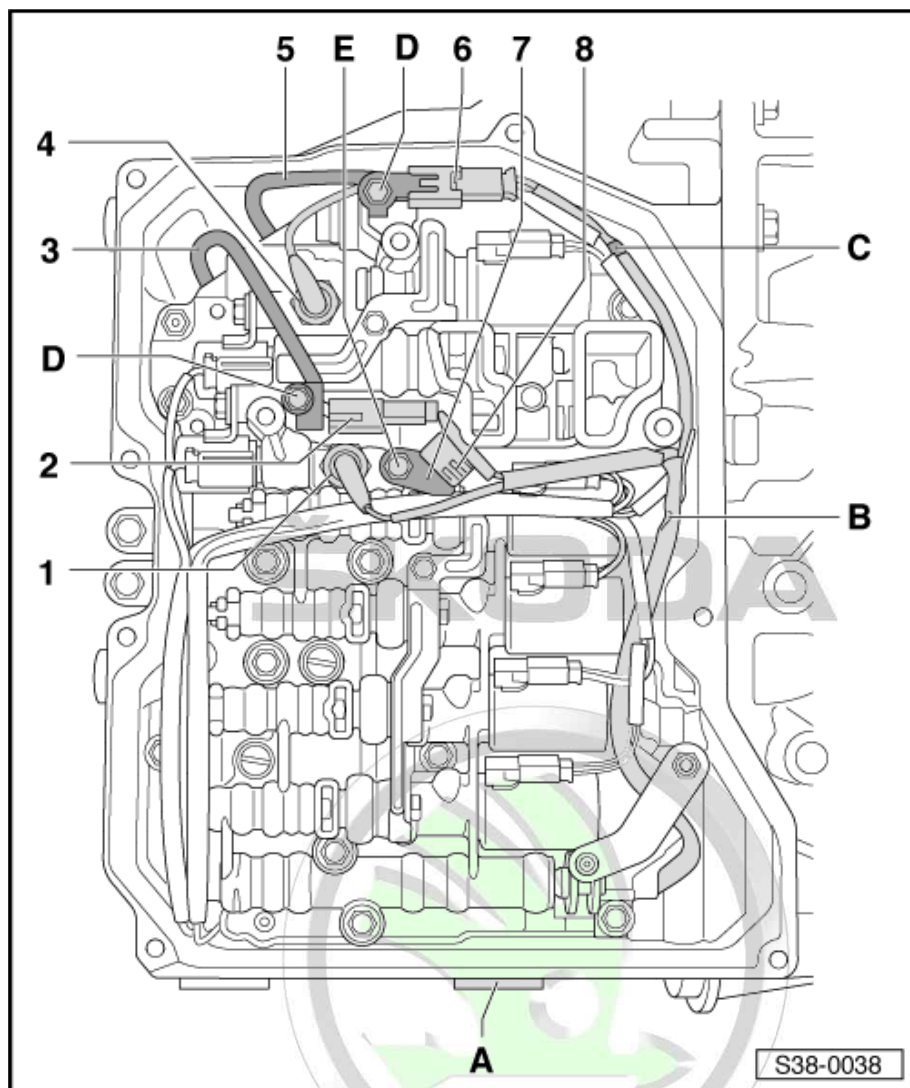
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A - 8-pin plug

B - Wiring loom for 8-pin plug

- Wiring loom components ➔ [page 65](#)



Note

General repair information ➔ [page 5](#).

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Removing wiring loom with 8-pin plug

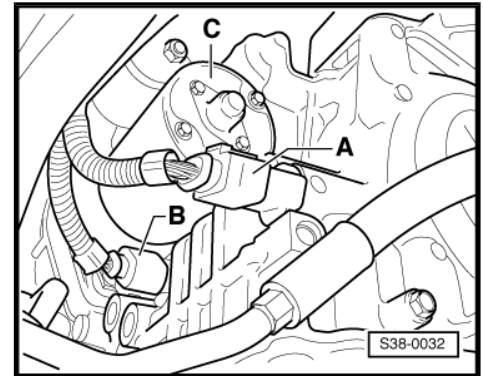
- Disconnect the earth strap from the battery with the ignition off.
- Removing the oil pan ➔ [page 65](#).
- Removing oil filter ➔ [page 67](#).
- Remove the slide valve body ➔ [page 67](#).



With gearbox installed:

- Unplug the 8 pin plug connection -B- from gearbox plug.

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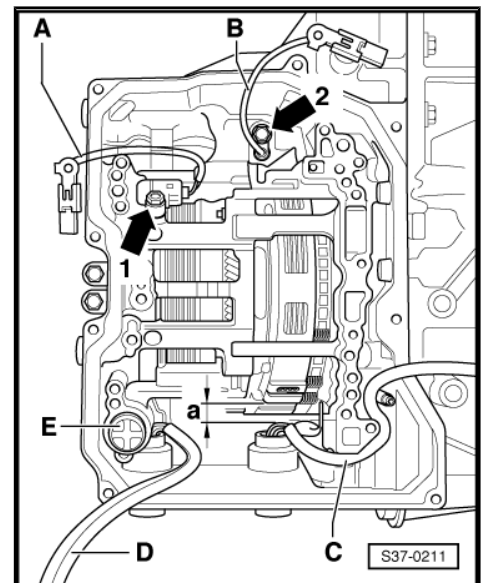
All:

- Unscrew fixing screw of 8-pin plug outside the gearbox housing.
- Pull the plug out of the gearbox housing and carefully guide through the wiring loom -C-.

Install wiring loom with 8-pin plug

Installation is performed in the reverse order, pay attention to the following points:

- Replace O-ring at plug ⇒ Electronic Catalogue of Original Parts .
- Moisten the O-ring with ATF.
- Press plug with positioned O-ring up to the stop into the gearbox.



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Tightening torque

Component	Nm
Locking screw for 8-pin plug	⇒ page 64

1.7 Removing and installing the gearbox input r.p.m. sender -G182-



Note

General repair information ⇒ [page 5](#) .



WARNING

Observe measures when disconnecting and connecting the battery ⇒ Electrical System ⇒ Rep. Gr. 27 .

Removing gearbox input r.p.m. sender -G182-

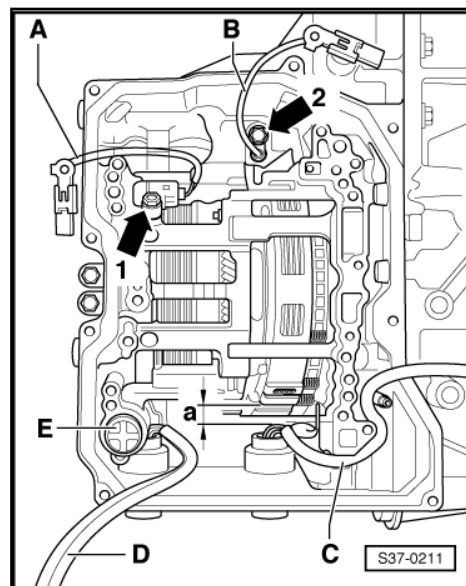
- Disconnect the battery-earth strap with the ignition off ⇒ Electrical System ⇒ Rep. Gr. 27 .
- Removing the oil pan ⇒ [page 65](#) .
- Removing oil filter ⇒ [page 67](#) .

- Remove the slide valve body ➔ [page 67](#) .
- Release screw -1-.
- Pull gearbox input r.p.m. sender -G182- with cable -A- out of the gearbox.

Installing gearbox input r.p.m. sender -G182-

Installation is performed in the reverse order, pay attention to the following points:

- Carefully press gearbox input r.p.m. sender -G182- up to the stop into the gearbox.



Tightening torque

Component	Nm
Gearbox input r.p.m. sender -G182- to gearbox, M6 screw	➔ page 64

1.8 Removing and installing the gearbox output r.p.m. sender - G195-



Note

General repair information ➔ [page 5](#) .



WARNING

Observe measures when disconnecting and connecting the battery ➔ Electrical System ➔ Rep. Gr. 27 .

Removing gearbox output r.p.m. sender - G195-

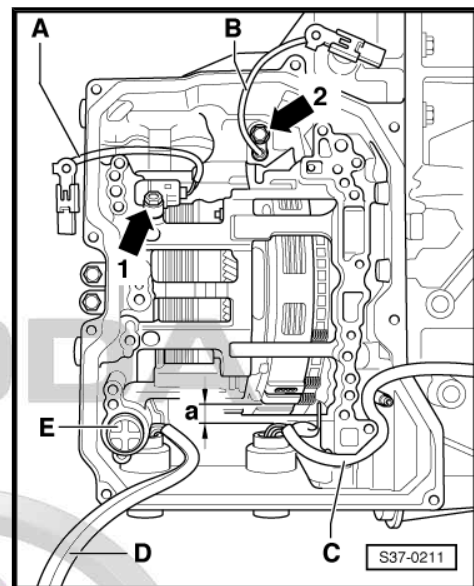
- Disconnect the battery-earth strap with the ignition off ➔ Electrical System ➔ Rep. Gr. 27 .
- Removing the oil pan ➔ [page 65](#) .
- Removing oil filter ➔ [page 67](#) .
- Remove the slide valve body ➔ [page 67](#) .

- Release screw -2-.
- Pull gearbox output r.p.m. sender -G195- with cable -B- out of the gearbox.

Installing gearbox output r.p.m. sender -G195-

Installation is performed in the reverse order, pay attention to the following points:

- Moisten the O-ring at sender with ATF.
- Carefully press gearbox output r.p.m. sende -G195- up to the stop into the gearbox.



Tightening torque

Component	Nm
Gearbox input r.p.m. sender - G195- to gearbox, M5 screw	⇒ page 64

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2 Removing, installing and setting multi-function switch -F125-

2.1 Removing and installing the multi-function switch -F125-

Removing

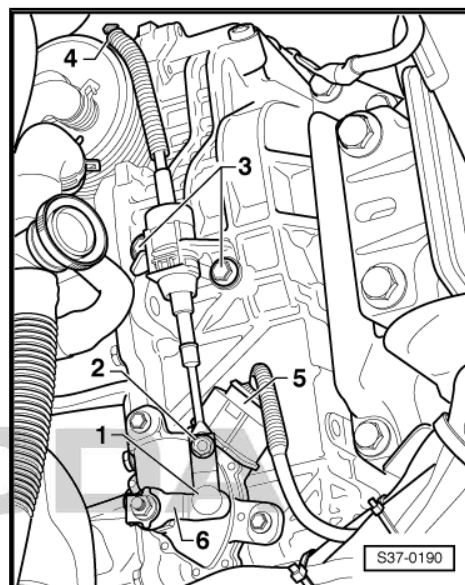
- Shift selector lever to position “N”.
- Switch off ignition.
- Remove air filter ⇒ Engine ⇒ Rep. Gr. 24 .
- Lever off the selector lever control cable -1- from the gearshift shaft lever -6- e.g using an open-end wrench, while ensuring that the selector lever control cable does not get kinked.



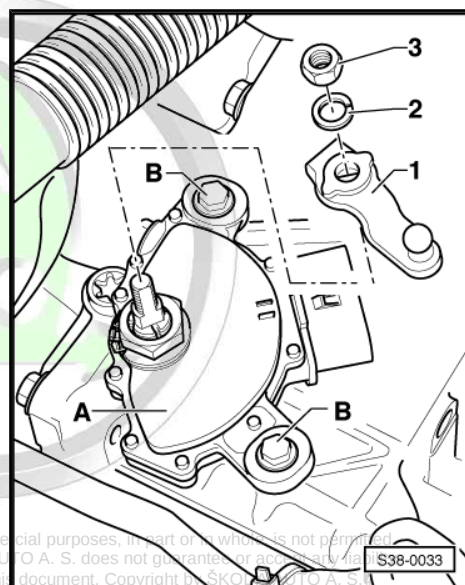
Note

Do not release screw -2-.

- Unplug connector -5- at multi-function switch.



- Remove gearshift shaft lever -1-.



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- Bend back the hooks of the circlip -2- using a screwdriver.



Note

If one or several hooks of the circlip break off by bending, the circlip must be replaced ⇒ Electronic Catalogue of Original Parts.

- Remove nut -3- with washers -2- and -1-.
- Unscrew the 2 screws -B- and pull off the multi-function switch -A- upwards over the gearshift shaft.

Install

Installation is carried out in the reverse order. Pay attention to the following:

- Fit the multi-function switch -F125- onto the gearshift shaft.
- Tighten the fixing screws -B- for multi-function switch by hand.
- Fit washers -1-, -2- and nut -3- onto the gearshift shaft.
- Secure the nut by bending up the hooks to the circlip -2-.



Note

If one or several hooks of the circlip break off by bending, the circlip must be replaced ⇒ Electronic Catalogue of Original Parts.

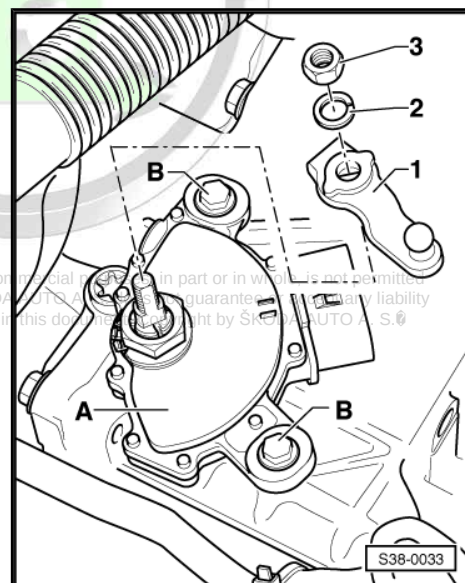
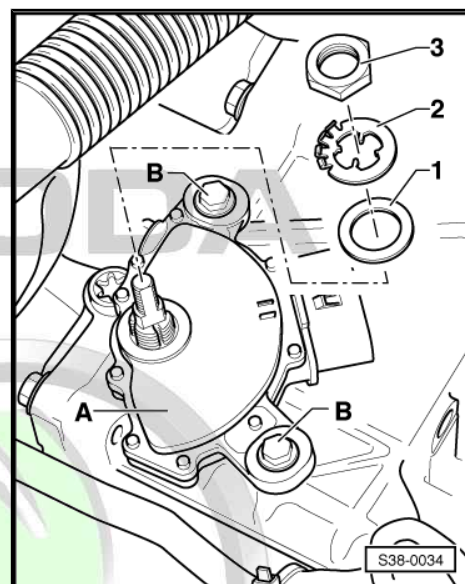
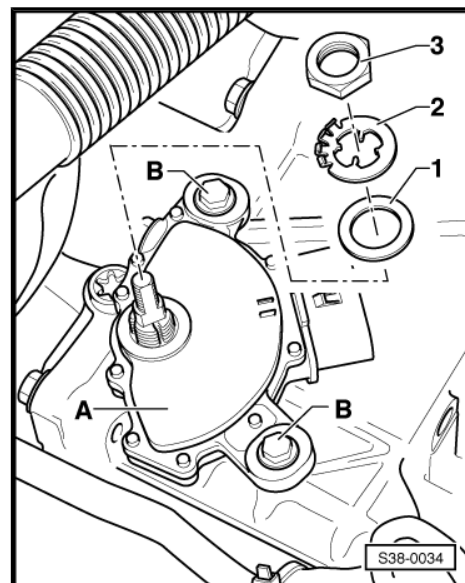
- Setting multi-function switch -F125- ⇒ [page 86](#).

- Install gearshift shaft lever -1-.



Note

The gearbox must remain in the position "N", if necessary shift back into "N".



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- The plug -5- is placed onto the multi-function switch.
- Push selector lever control cable -1- onto the gearshift shaft lever -6-, while ensuring that the lever control cable does not get kinked.



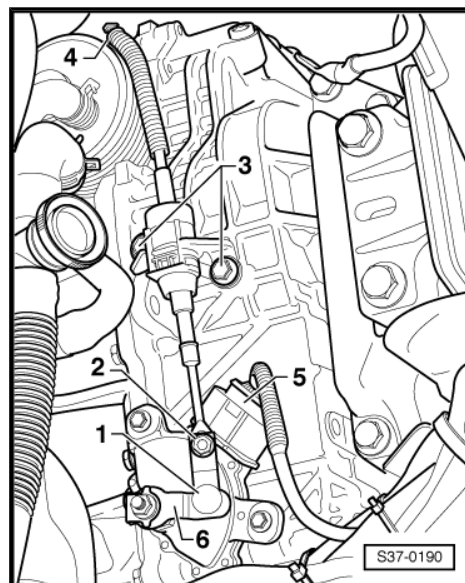
Note

Under some circumstances the gearshift shaft lever must be shifted in the correct position, in order to be able to push on the selector lever control cable.

- Inspect setting of selector lever control cable ⇒ [page 21](#) .

Tightening torques

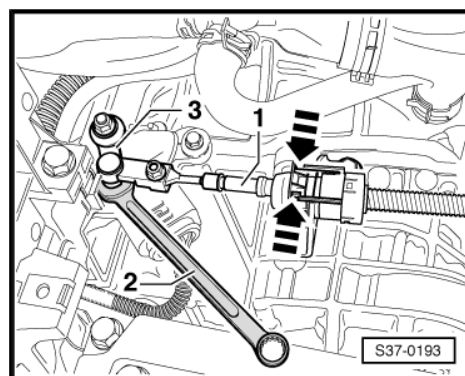
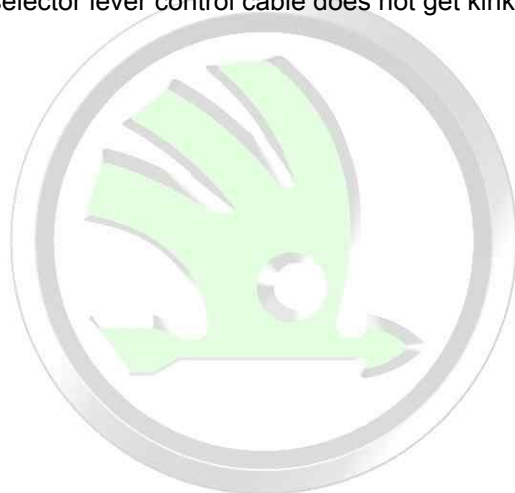
Component	Nm
Multi-function switch -F125- to gearshift shaft	7
Gearshift shaft lever to gearshift shaft	13



2.2 Setting multi-function switch -F125-

Special tools and workshop equipment required

- ◆ Setting gauge -T10173-
- Shift selector lever to position “N”.
- Switch off ignition.
- Remove air filter ⇒ Engine ⇒ Rep. Gr. 24 .
- Lever off the selector lever control cable -1- from the gearshift shaft lever -3- e.g using an open-end wrench -2-, while ensuring that the selector lever control cable does not get kinked.

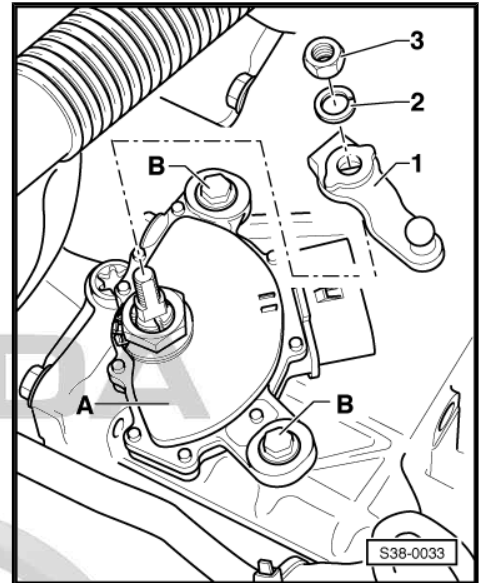


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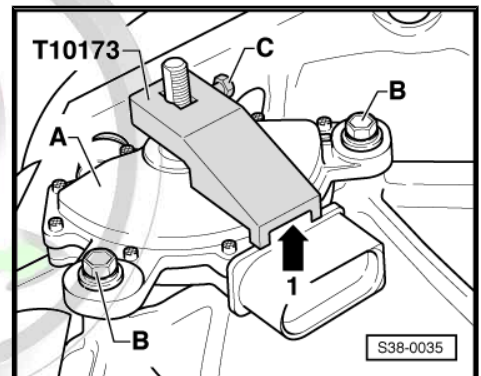
- Remove gearshift shaft lever -1-.
- Loosen both screws -B-.



Do not release the screws.



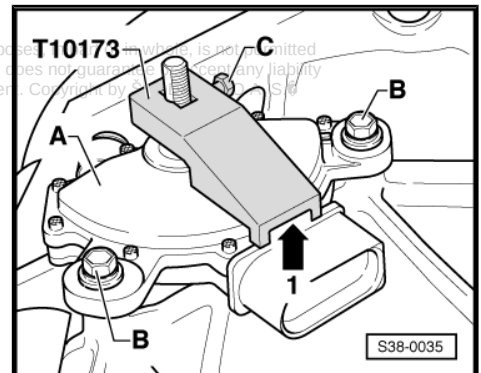
- Fit the setting gauge -T10173- onto the gearshift shaft.



- Turn the multi-function switch -A- until the peg of the plug -arrow 1- engages in the groove of the setting gauge -T10173-.

If the peg of the plug cannot engage into the groove of the setting gauge, then the gearbox is no longer in the position "N". In this case, the gearbox must be shifted with the setting gauge into the position "N":

- To do so turn the setting gauge to the front or to the rear, until the peg of the plug -arrow 1- can engage into the groove of the setting gauge -T10173- (if necessary slightly turn the multi-function switch -A-).
- Fix the setting gauge -T10173- to the gearshift shaft using a knurled screw -C-



- Screw on the two screws -B- (6 Nm).
- Remove setting gauge from gearshift shaft.

Further installation occurs in reverse order.

- Inspect setting of selector lever control cable ➔ [page 21](#).

39 – Final drive, differential

1 Replace the flange shaft gasket rings

Gasket rings can be replaced with the gearbox installed.

1.1 Replacing the left flange shaft gasket ring

Gasket ring can be replaced with the gearbox installed.

Special tools and workshop equipment required

- ◆ Pressure plate -T10176-
- ◆ Extractor -T10055-
- ◆ Adapter -T10055/2-

Procedure



Note

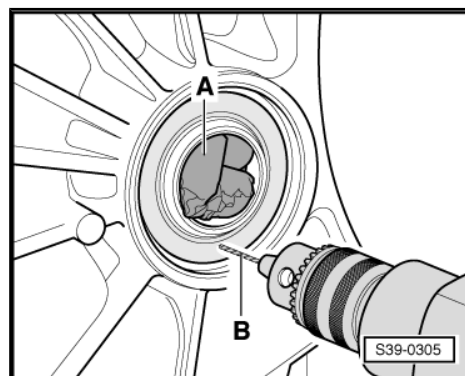
General repair information ⇒ [page 5](#).

- Remove noise insulation ⇒ Body Work ⇒ Rep. Gr. 50.
- Remove left drive shaft ⇒ Chassis ⇒ Rep. Gr. 40.
- Close opening for drive shaft at gearbox with a clean cloth -A-.
- Position the catch pan under the gearbox.
- Drill a hole in the outer metal plate ring of the shaft seal with a commercially available twist drill -B- (Ø 2 to 4 mm).



Note

- ◆ Only drill through the metal plate ring, otherwise the gearbox may be damaged.
- ◆ Grease drill -B- in such a way that the drillings adhere.



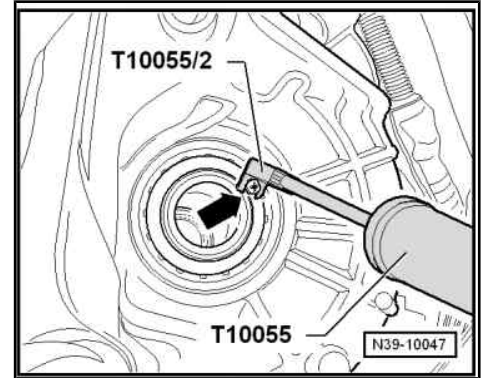
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- Screw a sheet metal screw with a diameter of approx. 4 mm into the drilled hole of the gasket ring -arrow-.

i Note

The sheet metal screw must not be screwed in too deep, so that the bearing behind the screw is not damaged.

- Remove the gasket ring with the extractor -T10055- and adapter -T10055/2- .
- Remove cloth -A- and thoroughly clean the gearbox.

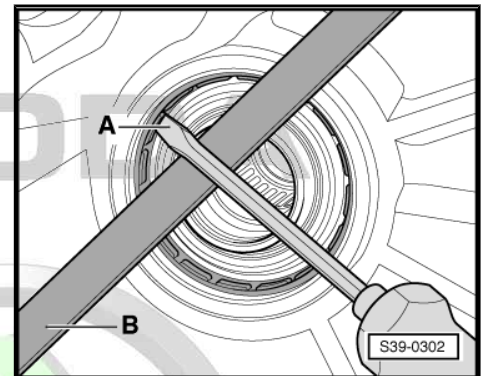


WARNING

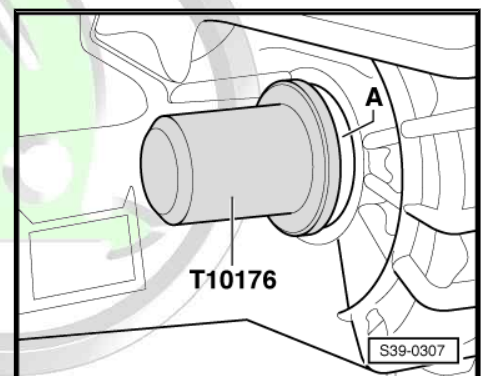
No metal swarfs must enter into the gearbox and into the opening for the drive shaft, if necessary suction off these swarfs.

When levering out, if only the the metal plate ring of the shaft seal could be removed:

- Lever out the remaining shaft seal with a screwdriver -A-.
- Smear the outer surface and sealing lips of the gasket ring with ATF.
- Fitting location: The open side of the gasket ring faces towards the gearbox.
- Position new seal ring by hand and press in as far as possible, so that the shaft seal is fixed in the gearbox housing.



- Position pressure plate -T10176- in the middle on the shaft seal -A-.
- Drive the new gasket ring up to the stop in the pressure plate; do not tilt the gasket ring.
- Install left drive shaft ⇒ Chassis ⇒ Rep. Gr. 40 .
- Inspecting ATF level and if necessary topping up ⇒ [page 52](#) .
- Install the noise insulation ⇒ Body Work ⇒ Rep. Gr. 50 .



Tightening torque

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Flange shaft to gearbox

⇒ Chassis ⇒ Rep. Gr. 40

1.2 Replacing the right flange shaft seal ring

Gasket ring can be replaced with the gearbox installed.

Special tools and workshop equipment required

- ◆ Pressure plate -T10177-
- ◆ Extractor -T10055-

◆ Adapter -T10055/2-

Procedure



Note

General repair information ⇒ [page 5](#).

- Remove noise insulation ⇒ Body Work ⇒ Rep. Gr. 50 .
- Remove right drive shaft ⇒ Chassis ⇒ Rep. Gr. 40 .
- Close opening for drive shaft at gearbox with a clean cloth -A-.
- Position the catch pan under the gearbox.
- Drill a hole in the outer metal plate ring of the shaft seal with a commercially available twist drill -B- (Ø 2 to 4 mm).



Note

- ◆ Only drill through the metal plate ring, otherwise the gearbox may be damaged.
- ◆ Grease drill -B- in such a way that the drillings adhere.

- Screw a sheet metal screw with a diameter of approx. 4 mm into the drilled hole of the gasket ring -arrow-.



Note

The sheet metal screw must not be screwed in too deep, so that the bearing behind the screw is not damaged.

- Remove the gasket ring with the extractor -T10055- and adapter -T10055/2- .
- Remove cloth -A- and thoroughly clean the gearbox.



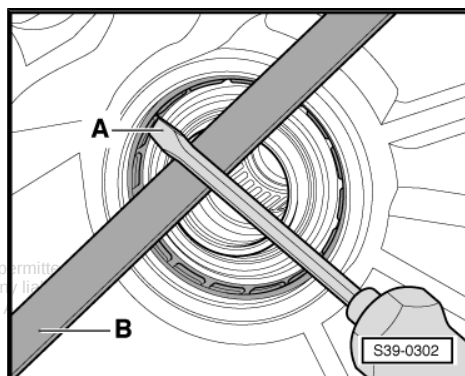
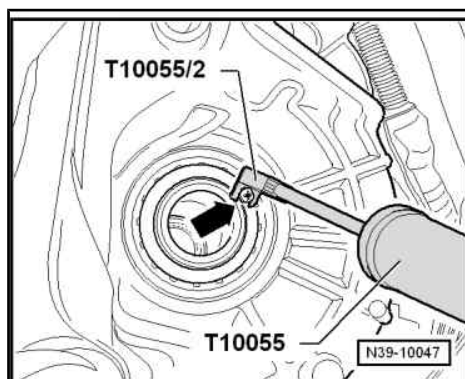
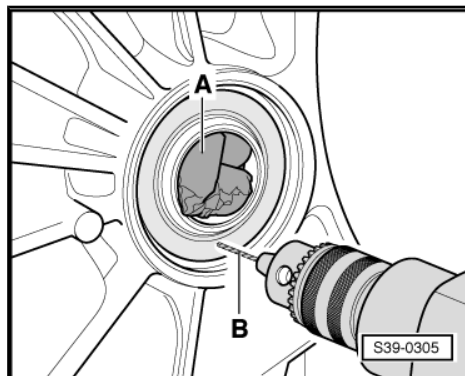
WARNING

No metal swarfs must enter into the gearbox and into the opening for the drive shaft, if necessary suction off these swarfs.

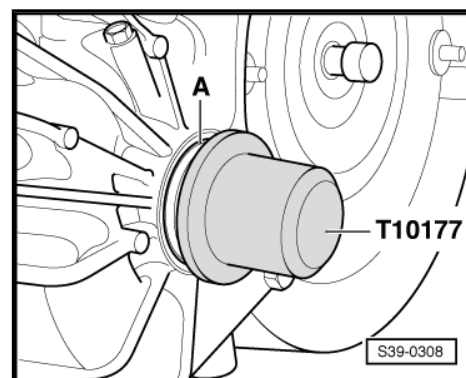
When levering out, if only the the metal plate ring of the shaft seal could be removed:

- Lever out the remaining shaft seal with a screwdriver -A-.
- Smear the outer surface and sealing lips of the gasket ring with ATF.
- Fitting location: The open side of the gasket ring faces towards the gearbox.
- Position new seal ring by hand and press in as far as possible, so that the shaft seal is fixed in the gearbox housing.

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- Position pressure plate -T10177- in the middle on the shaft seal -A-.
- Drive the new gasket ring up to the stop in the pressure plate; do not tilt the gasket ring.
- Install right drive shaft ⇒ Chassis ⇒ Rep. Gr. 40 .
- Inspecting ATF level and if necessary topping up ⇒ [page 52](#) .
- Install the noise insulation ⇒ Body Work ⇒ Rep. Gr. 50 .



Tightening torque

Flange shaft to gearbox	⇒ Chassis ⇒ Rep. Gr. 40
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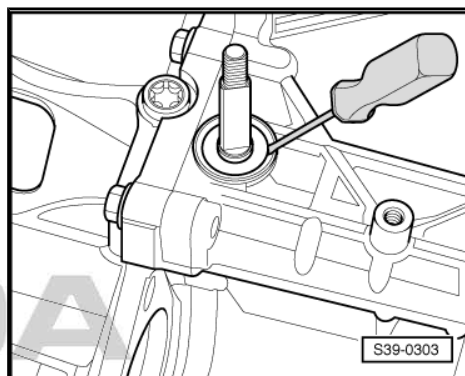
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2 Replacing the gasket ring for the gearshift shaft

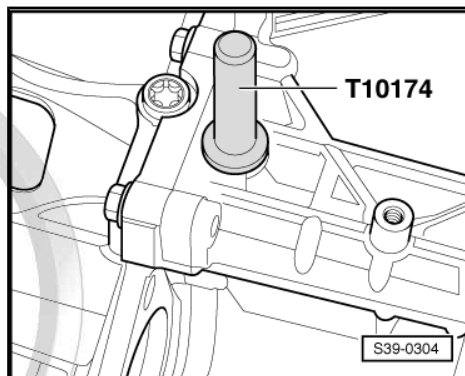
2.1 Replacing the gasket ring for the gearshift shaft

Special tools and workshop equipment required

- ◆ Pressure plate -T10174-
- Removing multi-function switch -F125- ➔ [page 84](#) .
- Remove gasket ring with screwdriver, do not damage the gearshift shaft.
- Smear the outer surface and sealing lips of the gasket ring with ATF.
- Fitting location: The open side of the gasket ring faces towards the gearbox.



- Drive in the new seal ring with pressure plate -T10174- up to the stop, do not twist the seal ring.
- Installing and setting multi-function switch -F125- ➔ [page 84](#) .



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